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## **DESIGNING FOR CLIMATE CHANGE FOR ALL—A MEDIA AND COMMUNICATION DESIGN COURSE TO INCREASE PUBLIC AWARENESS**

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### **ABSTRACT**

In order to proactively respond to the 13th category of Climate Change in UNESCO SDGs, the course of Media and Communication Design for Climate Change is designed to deliver comprehensive future-oriented design methodology to inspire and increase public sensibility and awareness about the vigorous environmental and human health situation caused by global warming and pollution.

The course introduced the tools and methods of design upfront, to assist the students in addressing the issues, analysing the logic and, more importantly, building up capability to imagine the future and inspire potential short, mid- and long-term solutions. After 2-week practice, the students had chance to create design works in various medias and circumstances by different design approaches. Through intensive collaborations with students, the course aims to empower the practitioners to confront the fundamental changes at every level of society, and embrace the social innovation in more effective and dynamic ways of design.

Key Words: climate change, media and communication, design public awareness, pedagogy

## 1. INTRODUCTION

The threat to human civilization posed by man-made climate change has become an indisputable fact embraced by a near-unanimous consensus of scientists around the world. Limiting global warming to 1.5°C would require rapid, far-reaching and unprecedented changes in all aspects of society (IPCC Climate Report, 2018). The problem of how to solve global warming is complicated by the urgency of the matter. Scientists agree that curbing greenhouse gasses must begin immediately if we as a civilization are to avert its dire consequences. This change is predicated upon the widescale cooperation on the part of citizens, governments, NGOs and private entities in order to drastically reverse long-held practices that contribute to greenhouse gas emission. This task poses an enormous and daunting challenge to media designers and communications experts, who must educate, convince, engage and change organizational and individual behaviours within a short time frame. Our teams' contribution to this endeavour, Design for Climate Change, emerged from a collaborative media design class recently taught at Tongji University in Shanghai, China, by Tongji professor Bo Gao, and professors Glenda Drew and Jesse Drew, from the University of California. Using the lessons learned from this experimental design course, we have chosen to extract our pedagogical approach and formulate it into a reproducible course that could be taught at other universities.

In response to the 13.3 category of Climate Change in UNESCO SDGs (Sustainable Development Goals)—including improving education, raising public awareness, mitigating human and institutional capacity, encouraging public adaptation of new behaviours, and reducing impact and creating early warning systems (UNESCO, 2018)—thirty-eight, second-year undergraduate students from Media Communication Design at Tongji University participated in this experimental course from November 2017 to January 2018.

Media and Communication Design for Climate Change is an approach to problem solving that places climate change in its social, economic, political and ecological context, but also considers the myriad of stakeholders and other factors that could channel outcomes into a broad array of possibilities. The course introduces the tools and methods of design upfront, to assist the students in addressing the issues, analysing the logic and, more importantly, building up capability to imagine the future and inspire potential short, mid- and long-term solutions. After 2-weeks of theoretical introduction, research and skills building, the students move into practical design teams to create design works using various media, target audiences and delivery platforms. Throughout this short but intensive collaborative class, students are empowered to confront fundamental challenges brought about by climate change, and develop innovative methods to fuse the design discipline with changes in behaviour.

## 2. THE APPROACHES

The problem of changing individual and organizational behavior to fight climate change is posed as a problem that must be understood and acted upon by large sectors of society. This is the central problem posed to designers fighting climate change. Students are introduced to basic theories of communicative theory, including the public sphere and the practice of social investigation (McQuail, 2010). Then, students collectively identify key topics and roadblocks in the public view of climate change.

### 2.1. The Public Sphere

An understanding of how “publics” are formed and informed by communication methods is a primary consideration—whether traditional newspapers, radio, television, or newer forms of social media such as We Chat, Facebook, Instagram or Twitter. Understanding these media spheres of the public illustrates the division of the public sphere today, mostly along lines of age, gender, nationality and cultural behaviors. (Habermas, 1991) Understanding exactly who the public is and how to reach them is critical to designing for social change. Other critical understandings include: what is meant by “civil society,” how public opinion influences the levers of power in a society and how an agenda gets set in the social realm. “Public Opinion” is broken down into its' own constituent parts; all issue publics, apathetic publics, single-issue publics, and hot-issue publics. Tantamount to this relationship is the role of “gate-keepers” or key influencers within the public who are key to passing on ideas to larger groups of people. Oftentimes, an effective design strategy targets gatekeepers first and foremost among the public.

### 2.2. Social Investigation

Students are directed to engage with the public around them, isolating several different target groups; family members, the university community of staff, faculty and students, and random people on the street. Using an agreed-upon questionnaire and personal media recording devices such as smart phones, this exercise gets students out of a passive position and puts them face-to-face with the public they wish to engage with. (It was surprising how difficult this was for many young people, who are “social” on media, but shy in public.) Here is a sampling of questions students came up with during the experimental course:

- Where do you get your news?
- What are the five most important issues to you?
- What would you like more information about?
- Rank five problems in order of importance.

Questions about global warming and climate change were then seeded into these questions, as a means of understanding what people knew and how they ranked the issues that were important to them. If students are to utilize design skills to influence social, cultural and economic behaviour, the understanding the way ideas flow through society and how behaviour change is adopted is important. Many of these concerns involve understanding diffusion theory, recognizing different types of adaptors in any social structure and considering different levels of adaptation to new ideas. (Rogers, 2003). Traditionally, members of the public can be broken down into these categories:

- Early adopters
- Early majority
- Majority
- Non-adopters (laggards)

Understanding the order of events whereby new information is grasped by people can be generalized by the following levels:

- Awareness—Individual is aware of “it.”
- Interest—Wants to learn more.
- Evaluation—Asks others for feedback.
- Trial—Uses a sample, etc.
- Adoption—Now a user/believer.



[Figure 1] The agreed-upon questionnaire has been adapted in the course

### 2.3. Different concepts of media formations

Finally, different approaches to what “media” is can be helpful for students devising a means to reach a public with information in the hopes of changing behavior. Some of these different concepts of media formations can be identified as the following (Drew, 2014):

- 1). Marginal communication, or communication unrelated to organized movements, such as social networking sites that share personal information.
- 2). Horizontal communication, an equal exchange between organized sectors of oppositional organizations for purposes such as joint strategy and action.
- 3). Anticommunication, or the willful subversion of mainstream media messages (sometimes referred to as “culturejamming”), including activities such as billboard altering or jamming of radio/television signals.
- 4). Alternative communication, or the communicative activities of oppressed groups both within the group and towards a mass audience.
- 5). Internal communication, or communication among the membership of organizations or between the leadership and membership of organizations.

### 2.4. Praxis and a Hack-a-thon

Following the theoretical work of designing for social change, the class of students are led in a focused “brainstorming” session with the goal to generate the four most important areas of media to focus on depending on the public they are trying to reach. Based upon the work of their targeted interview groups for questioning; family, students, worker/staff and people on the street, students generate several important communication arenas on which to concentrate. Outcomes from the experimental course included a video campaign of short videos to distribute via youtube and other online channels, a mobile device app using gamification, an app to code and launch for mobile phones, an animated display that would be projected underground in the metro stations, and a print poster campaign for dissemination on public kiosks and walls. Faced with the challenge of changing public perceptions and understandings of global warming, students strategized creative and provocative prototypes to inform, educate and evoke behavior change. The wide-ranging strategies included using data visualization, fostering empathy with threatened animal life, generating humor or fear in the target audience, and a myriad of other possibilities.

Once key areas are decided, students work in their teams within a short time-frame to link their ideas about climate change to a practical or speculative, realizable, prototypable media products that can be introduced into the public realm. Students work collaboratively around shared tables, energizing each other to complete their tasks, while sharing skills, ideas, iterations, concepts, sketches, drawings, models, codes, iterations, etc. It was our experi-

ence in the experimental course that students greatly enjoyed this collaborative and creative work.

Outcomes of this experimental course were shown at Tongji University as well as within the Design building at the University of California, Davis campus, to great public enjoyment.



[Figure 2] The brainstorming and the presentation of the draft ideas about climate change to a practical

### 3. THE OUTCOMES

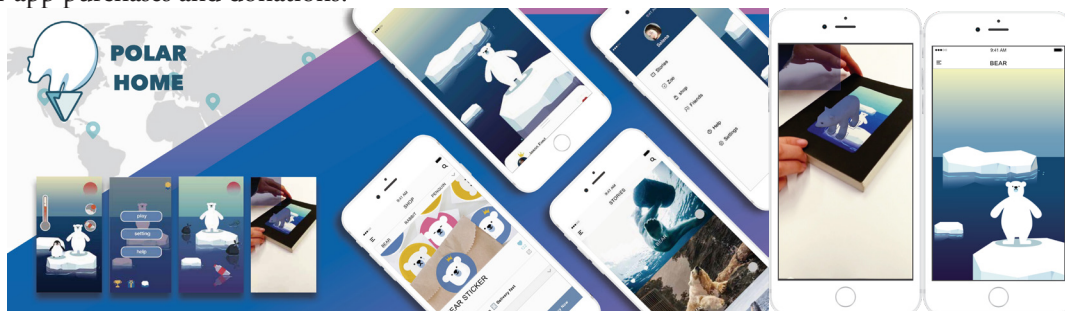
Five design projects were prototyped and developed in the Tongji course. The “New Life in 2048” team developed a series of creative interventionist posters (using digital design tools and hand-painting) for speculative fashions as a way to cope with extreme weather. The “Polar Home” team created an animated app to educate and warn users about the severity of the melting of polar glaciers. “The Ancient China Myths” team created an evocative silent video based on two well-known ancient Chinese myths, “Kua Fu Running After the Sun” and “Nu Wa Patching up the Sky,” to highlight the damage of smog and ozone depletion. The “What Makes You Die” team created animations for delivery in the underground metro stations of Shanghai that revolved around the death of a protagonist in different harsh environments due to climate change. The “Tap the World” team created an interactive game encouraging players to save the earth. Case studies for “Polar home”, “The Ancient China myths” and “What makes you die” follow.

#### 3.1. Polar Home

Target Audience: The Unconcerned

Output Format: Mobile App

Global warming has caused the melting of polar glaciers, and thereby has deeply threatened the survival of polar animals. While some people are unaware of the situation, others turn a blind eye to it. The purpose of this app is to educate users about the severity of the issue (through news stories, documentary photography, AR features and built-in, ironic games) and motivate users to make simple behavior changes on a daily basis. In addition the app harnesses robust social media features: Users can play games with their friends, or invite new friends to contribute actions in support of environmental protection. When the users attain certain achievements, collaborating environmental organizations will do something practical to save the planet. Users may in turn support such organizations through in-app purchases and donations.



[Figure 3] The App design of Polar home

#### 3.2. The Ancient China Myths

Target Audience: Family

Output Format: Silent Video

The design team fused environmental pollution and climate problems with two ancient Chinese myths. The stories of “Kua Fu Running After the Sun” and “Nu Wa Patching up the Sky” were creatively adapted to highlight the damage of smog and danger of ozone depletion. In the adapted stories, Kua Fu chases the sun and dies of poisoning caused by inhaling excessive, harmful smog, rather than dying of exhaustion. Because of the increasing size of the ozone hole, the azure sky breaks faster than Nu Wa can patch it, which ultimately results in her failure. As a public service runner in video screens of shopping complexes, the adapted stories engage a wide range of viewers. The videos influence viewers of the importance of the climate problems and protection of environment.

### 3.3. What Makes You Die

Target Audience: Youth and Adolescents

Output Format: Metro Animation

Due to the limitations of the subway screens, the animation is made up of four short clips, each corresponding to a word of “What Makes You Die”. The theme of the animations is the environmental issues of water caused by climate change. The four segments individually address acid rain, water pollution, desertification and sea level rise. A design strategy of a single white line is used to create a pastel effect, highlighting the “culprit” of human life represented by fluorescent colors. The whole animation revolves around the death of the protagonist in different harsh environments. This metro animation communicates using subtle black humor and attracts young people visually in the subway.

## 4. CONCLUSION



[Figure 4] The exhibition of student's work in UC Davis

Each project was featured in a poster for exhibition in the lobby of Cruess Hall, the well-trafficked Design Building at the University of California, Davis. Because all posters shared a common design strategy of layout and typography, the group looked cohesive and attractive as a whole. Just around the corner from the poster exhibition was a large, flat-screen display that looped through videos showcasing the trajectory of each project, from target audience interviews to design concepts and iterations to the final work. The exhibition and video display were so popular that they were extended from a two-week show to a five-week show. Students (both undergraduate and graduate) and faculty alike were impressed by the conceptual depth, creative ideation and excellent final outcomes.

As professors who work in both the theoretical and practical areas of design and media, this course led to enhanced understanding of design principles and practice addressing the critically important problems of global warming and climate change. We found this collaboration between Tongji University of Shanghai and the University of California, Davis, as one important step that contributed significant outcomes of contribution to individual and organizational change, as China and the United States are the two leading industrial powers in the world, and are well-placed to make an impact on climate change. In addition, it was an exciting and impactful international, educational exchange for the professors, student participants and greater university populations who experienced the final works.

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