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The Most Wicked of Problems?

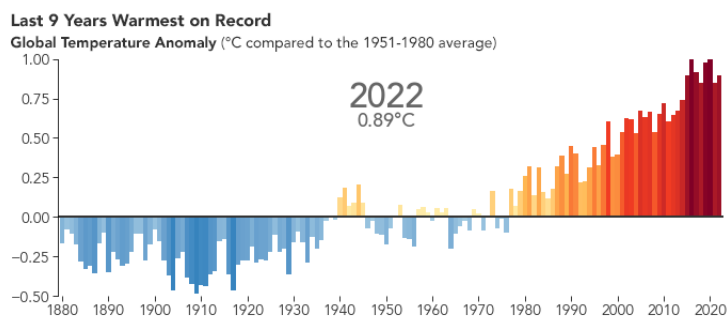


“Human-induced climate change is the largest, most pervasive threat to the natural environment and societies the world has ever experienced” (Fry, 2022).

The above statement made by the United Nations’ first Special Rapporteur on climate, clearly puts climate change at the top of the list of threats to humankind. But what is it about climate change that makes it the most wicked problem of all?

What is climate change, and why is it a problem?

Climate change is a long-term change in weather patterns and temperatures. Since the 1800’s, human activities have been the main cause (United Nations n.d.).



This graph by Nasa (n.d.) shows the change in global temperature since 1880, it's clear to see that things are certainly on the rise, with every year since 1980 being

warmer than the 1951-1980 average and the last 9 years being the warmest on record.

Energy production through the burning of fossil fuels, deforestation, increase in farming, use of fertilisers and growth in industry have all led to a dramatic increase in the production of harmful gases which “act like a blanket wrapped around the Earth, trapping the sun’s heat and raising temperatures” (United Nations, n.d).

What's wrong with a bit of warmer weather you may ask? A rise of 1°C from 1901-2016, is already having a devastating impact. Changes in rainfall are causing flooding and drought. We are experiencing heat waves and oceans are warming. Ice caps are melting, sea levels are rising, and water is becoming more acidic. All of these impacts are resulting in the world becoming a less habitable place (Impacts of Climate Change | US EPA, 2022) and are wreaking havoc with our ecosystems, habitats and the ability to produce food.

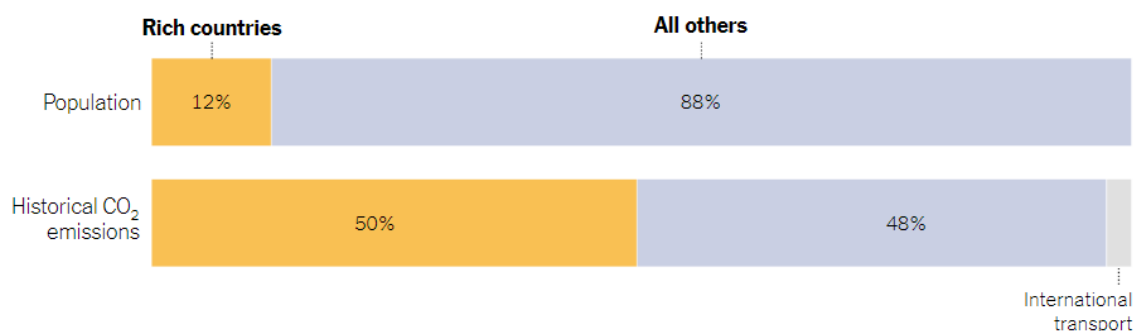
“Global warming is projected to commit over one-third of the Earth’s animal and plant species to extinction by 2050” (Global Warming and Endangered Species Initiative, n.d).

As worrying as the statistics on climate change are alone, the reason climate change tops the list of threats to humankind is its relationship with some of the other wicked problems we face.

The effects of climate change can be seen in people’s **health, wealth and happiness**, from displacement through loss of habitat to air pollution, lack of clean drinking water and food supplies.

The World Health Organization (2021) predicts that between 2030 and 2050, climate change will cause approximately 250,000 additional deaths per year.

Does climate change result in inequality and discrimination? As seen in this graph, the world’s wealthiest countries are disproportionately responsible for global warming with their burning of fossil fuels and ever increasing industry, yet these countries are least affected by the devastating impact that climate change has.



(Popovich and Plumer, 2021)

“Black people, Indigenous people, and people of color (BIPOC) are disproportionately experiencing the impacts of climate change: flooded homes, vanishing sources of drinking water, disrupted local economies, extreme heat waves” (McCarthy, 2021).

This imbalance of power between the global north and south is clearly seen in the climate change targets made by these wealthier countries. “Unambitious targets or protecting fossil fuel investments perpetuates racial injustice” (Williams, 2022).

Bendall (2018) wrote about the “deep adaptation” needed to reassess work and life in the face of an inevitable near term social collapse, but the impacts on our future that we fear in the global north are already happening to those living in the global south as a result of **our** actions.

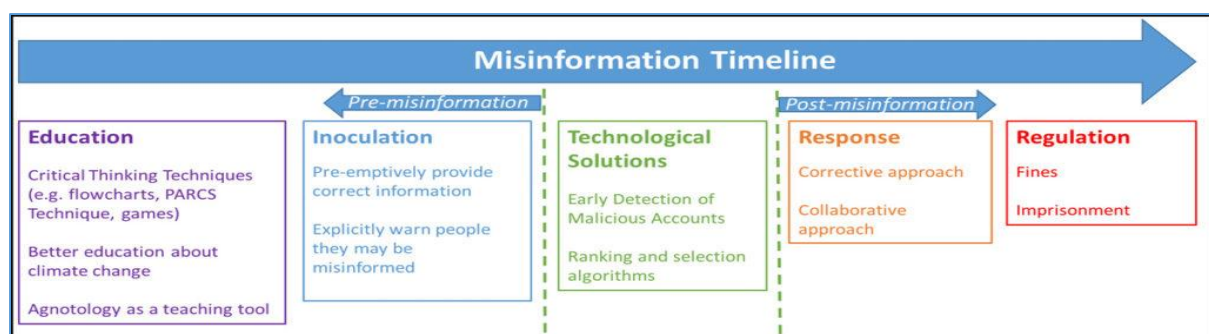
The responsibility is ours! As global citizens we must understand how our actions in one part of the globe can have such devastating impact to those living in a different part. All humans are of equal worth and we must work together to use and share the earth's resources fairly and uphold the human rights of all (Oxfam GB, n.d).

Skills to Make a Change



We often talk about the skills we need to give children to achieve their goals and make a difference, but what about the skills **WE** as educators need to enable future generations to tackle wicked problems such as climate change that they have inherited from generations before them?

“Misinformation about climate change is increasing, and it’s becoming harder to spot.” (Environmental Defence Fund, n.d). This timeline by Staff (2021) shows that Education is the first step in tackling misinformation on climate change.

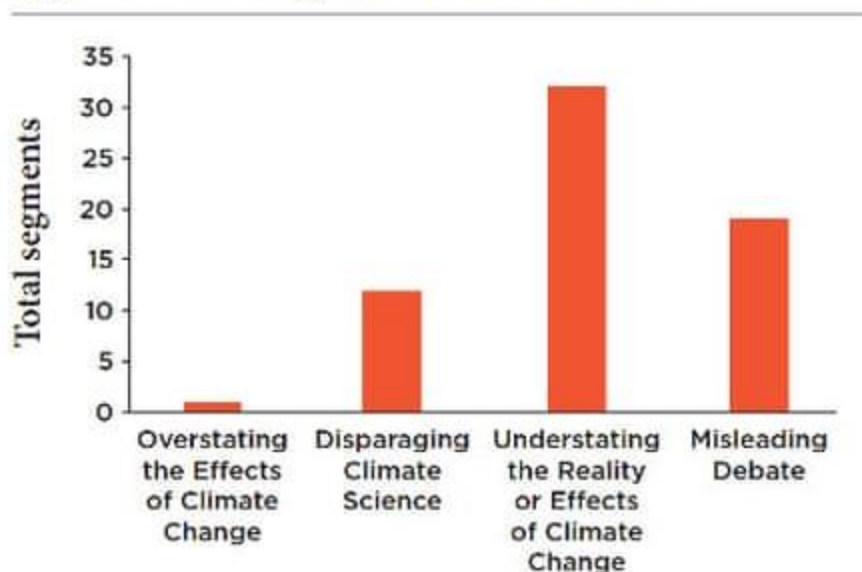


In order for us to support children’s learning and understanding of the facts that surround climate change it is vital that we are able to identify misinformation and disinformation ourselves. Fake news is said to travel six times faster than real news on social media (Vosoughi, Roy and Aral, 2018) and with access to social media

becoming more common for our children, it is vital as educators that we are able to not only support children in their own ability to identify misinformation but that we also ensure that the information we are using within the education setting is accurate and relevant.

Break free from the bubble! Being aware of the damage caused by lack of information within epistemic bubbles and the active discrediting of information through echo-chambers, we can develop the freedom to seek and share correct information with future generations (Nguyen, 2020).

Types of Misleading Statements on Fox News



Only 28% of information relating to climate change on Fox news was deemed to be accurate (Nuccitelli, 2021).

It's time to Move from darkness into the light. In order for us to be able to gain the wealth of accurate knowledge needed and the skills to pass that on, we must acquire one of the greatest skills of all, **critical thinking**. "Critical thinking is at the forefront of learning, as it aids a student to reflect and understand their points of view. This skill helps a student figure out how to make sense of the world, based on personal observation and understanding." (Singh, 2022) This way of thinking is also seen as the best way to develop action competence in environment education, which could be the key to making the practical changes required to tackle climate change. (Mogensen, 1997)

There's no denying that critical thinking is a vital skill for our youth to be able to make a change, but in order for teachers to nurture their pupil's critical thinking, they themselves must become critical thinkers first and therefore it should be an essential part of teacher training. (Oner and Aggul, 2021).



“Influencer” is a term commonly used today to describe an online personality that sways their target audience, but one of the first influencers we come across in life are within the school environment. As educators, we have the ability to build a strong emotional connection with our pupils and use any

of the five styles of influence to find the best way to ignite the passion for fighting for our environment and the future of humankind. “Teachers' emotions about climate change and their views on mitigation, influence their instruction and students' engagement in mitigation actions” (Hermans, 2016).

We are however all human and need to be aware of the effect of our own biases whether that be any of the cognitive biases or the effect of heuristics. We must also aim to lessen the effect of implicit bias from parents, peers, culture and media.

So let's make sure we are role models to the next generation! “Climate change's grave potential impacts are dismissed by individuals as problems for future generations to deal with” (Pasini et al., 2018). This temporal discounting is preventing individuals from taking the action needed to make a change. As educators we have a responsibility to our future generation and must look at our own actions **now** and the skills that we can impart to help them solve the wicked problem we have created.

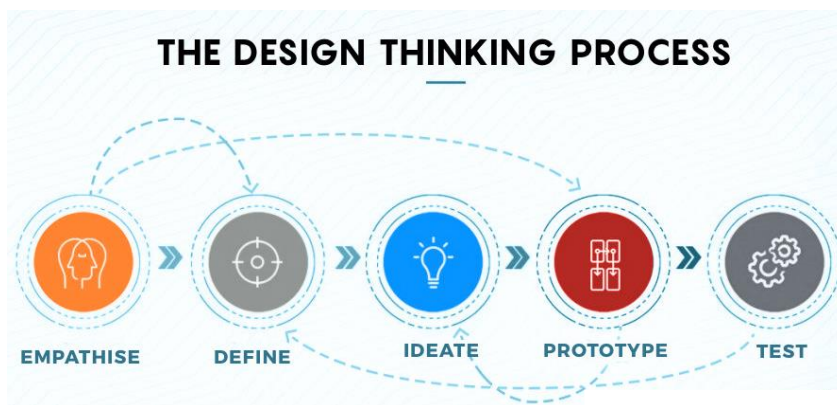
Solving the hardest puzzle of all



(Axios, 2021)

If only solving climate change was as simple as solving a Rubik's cube! But climate change is an extremely complex issue, it affects and is affected by so many different factors, including environmental sciences, politics, and economics, to name just a few (Thunderbird, 2020). Linear, well defined problems can be resolved using rules or technical knowledge but the way the different elements of climate change are weaved together to form this global crisis, results in the need for a different type of solution.

Design thinking, an idea that was first discussed in the early 70's by Herbert A. Simon (2019) as a way of solving wicked problems, has evolved to become a 5 step non-linear process as pioneered by Tim Brown (2019), that enables us to solve the most complex of problems through a collaborative, human centric way that focuses on the user (The Interaction Design Foundation, 2022).



(Jvatech_Admin, 2021)

The process defines who the user is and what problems they face, then through a non-linear process including ideation, prototype building and testing, finds an appropriate solution.

Koh et al. (2015) states that design thinking can be used in education to create practical ideas to resolve real-world problems as opposed to traditional epistemology which takes the view of knowledge as verified truth. Familiarising children with the process of design thinking at a young age prepares them for the task of coming up with innovative solutions to the complex issues faced by their generation.

A study by Yalcin and Erden (2021) found that teaching the design thinking process to children resulted in improved creative problem-solving skills, and increased communication and collaboration. They also found that these skills were transferable outside of the classroom, helping to increase self-confidence, encouraging children to produce ideas, and develop empathy skills.



(Chester, 2019)

Design thinking has faced its fair share of criticism in recent years Jen (2018) feels that the process lacks the opportunity for criticism, that a real non-linear approach to problem solving is messy and chaotic and that design thinking is actually linear in its nature and that evidence and critique is needed for real design solutions. She asks for evidence that design thinking actually works.

Others have criticised the inequality it creates with the power being given to the designer and not the user.

“Design Thinking gives students an unrealistic idea of design and the work that goes into creating positive change. Upending that old dictum “knowledge is power,” Design Thinkers give their students power without knowledge, “creative confidence” without actual capabilities” (Vinsel, 2021)

Is this a case of design thinking become a victim of its own success? With people going against the grain on a concept that has become so popular (Kettermann, 2019).

Young people are often seen by adults as dependant and receivers of care and education in a passive capacity. However, Article 12 of the United Nations

Convention of the Rights of the Child empowers children and young people to be actively involved in decisions that affect them and to have their opinions taken into account by adults. (OHCHR, 1989) With climate change having such a dramatic effect on their future, **We must give children the design thinking skills needed to actively contribute to decisions and changes that will directly affect the world they live in, to imagine, negotiate, or co-create their future.**

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