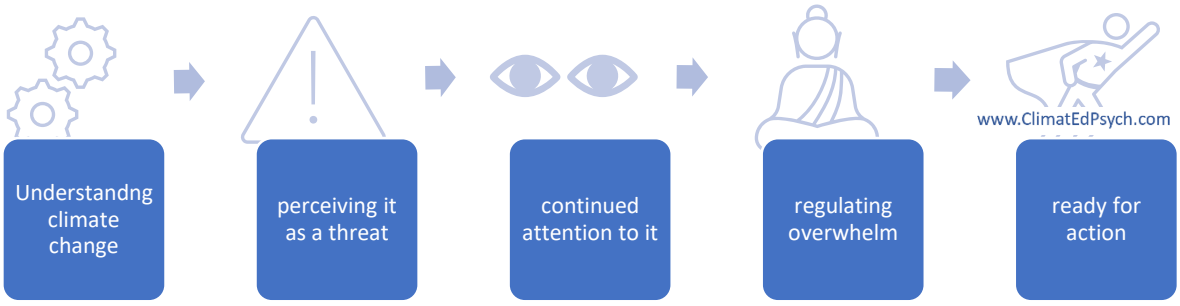
Dr Louise Edgington
www.ClimatEdPsych.com

Psychological biases and barriers to climate change engagement: A guide for educators

A few different theories of psychology, mainly in the form of cognitive biases, offer explanations for human inaction on climate change mitigation, on the individual and collective scale.

These shortcuts in thinking originally evolved to ensure our ancestors' survival by allowing them to think quickly and filter out unnecessary information to avert danger. We didn't want to waste energy thinking and worrying about things that weren't an immediate physiological need. Rather, it was an evolutionary advantage to be on the look-out for predators, to gather resources and be accepted by tribe. However, when we act on the assumptions and instincts in this 'fast' mode of thinking (Kahneman, 2011), we can struggle to make rational, balanced decisions based on a fair assessment of the information available. What once kept us safe, may now be working against us.



Consider the psychological processes that would have to happen before an individual is ready to take action on climate change, defined in this guide as:

1. Understanding climate change
2. Perceiving it as a threat
3. Continued attention to it
4. Regulating overwhelm

There are 'thinking traps' or psychological biases that affect human thinking at each stage.

Thinking traps: 1. (not) Understanding the climate problem

The scale and reach of the interacting causes and impacts of climate change make it complex, overwhelming and hard to fully grasp. As Time Magazine puts it: 'Climate is Everything'.

It is an intangible 'Hyperobject' that 'massively out scales us' (Morton, 2013). It can be hard to know where to begin. Most people perhaps have more salient things to think about, such as meeting a deadline, or how to pay the rent.

Even if you do choose to engage with the topic, finding the right information is not straightforward when presented with so many different sources.

We tend to seek out comforting news (optimism bias), or articles that agree with what we already believe (confirmation bias).

This can result in the 'echo chamber' phenomenon, with social media algorithms serving up more of what we seem to be interested in.

The algorithms also tend to expose us to attention grabbing news, even if it is fake. Many trusted influencers may unwittingly share or re-post something without even knowing it is 'fake', giving it more traction.

The growing phenomenon of artificial intelligence (AI) generated 'deep fakes', (where voices and faces can be cloned, creating a very convincing video) poses an even greater challenge to spot.

Together, the combination of echo chambers and a mistrust of those outside the 'chamber', high uncertainty and complexity can breed conspiracy narratives. While conspiracy theories can offer a soothingly simple solution to a complex problem, they are known to reduce intentions to act on climate (Jolley, 2013).

Encouragingly, the Department for Education (DfE, 2022) is now recognising the imperative to educate children on climate change.

1. Recommendations

Teach:

- The science of climate change in reference to the Intergovernmental Panel on Climate Change (IPCC)
- Geopolitical & economics of climate change (e.g. carbon credits, CoP mechanisms)
- Theories of social change and past sucesses (e.g. ozone layer)
- Human responses to climate change - our psychology models that 'gather' the biases may be helpful

e.g. Per Espen Stoknes 5 D's model is a clear model of defences, which offer 5 solutions

Practice skills:

- Of checking facts and information sources, reasoning and critical thinking
- Of oracy and debate to weigh up both sides of an agument

Dr Louise Edgington
www.ClimatEdPsych.com

Thinking traps: 2. (not) Perceiving climate as a problem

Even those that understand climate change can still struggle to perceive it as an existential threat. That is because, according to Harvard psychologist Dan Gilbert our brains have evolved to respond to threats that have the following features:

- **Personal** – a threat from other humans e.g. a pickpocket.
- **Abrupt** – sudden changes e.g. a bomb.
- **Immoral** – things that are indecent or repulsive e.g. violence against a person
- **Now** – happening immediately or could happen soon e.g. losing your job.

So, while the threat of burglaries or terrorism taps into all four features (and therefore affects policy and behaviour), climate change is for many people, a somewhat distant, unfolding problem, not involving any particular perpetrator or amoral 'enemy'. We struggle to *feel* alarmed at reports of '400 parts per

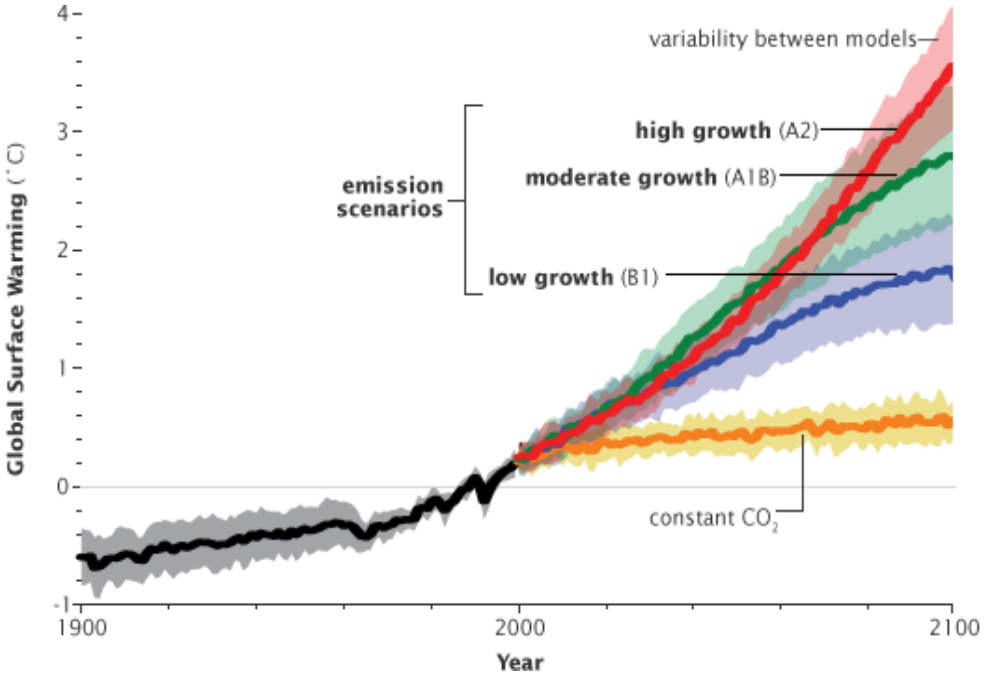
Which one gets your attention?

Which has greater consequences?

However, the impacts of flooding, drought and wildfires are becoming 'personal', 'abrupt' and 'now' for increasing numbers of people. Climate is now being recognised as an existential threat.

The historic 'cover up' of climate impacts by oil giants is increasingly recognised as immoral (Wallis-Wells, 2019). Activists and campaigners perhaps have been successful in highlighting climate change as a threat because they have helped highlight the 'immorality' of some people's or organisations' unsustainable actions.

Another barrier we have with regard to threat perception is our difficulty in thinking mathematically (Slovic, 2020). A 2˚ level of global warming does not mean that your 20 ˚ days will just become 22 ˚. The seemingly small degrees of warming refer to global average temperatures and perhaps hide the extremes of variability



and unpredictability across the globe, as well as ignoring the impacts secondary consequences (e.g. disease outbreaks, crop failure).

We also have difficulty with an exponential curve. Biases such as 'anchoring' and the availability heuristic (where people are swayed by recently seen and readily available figures) mean that we automatically tend to make linear projections of change.

In other words, we look at the last five years' temperature rise and assume that the next five years will be similar. This is not the case, unless, perhaps emissions had stayed to stay at 2000 levels (orange line in Image - source: Intergovernmental Panel on Climate Change (IPCC) WG1 AR-4).

The rate of change in temperature is actually accelerating due to interacting feedback systems or that reinforce each other (e.g. warmer oceans hold less CO_2 which causes more warming).

However, there is a danger that presenting the full severity of future scenarios can actually cause many people to become more sceptical (Feinberg & Willer, 2010), particularly when combined with a perceived lack of control.

The framing effect shows that people are more likely to change their behaviour when the *benefits* of action are highlighted (e.g. if we switch to electric vehicles, you'll save money on fuel, reduce emissions and save X number of lives), rather than the risks of inaction (e.g. if we do nothing, humans will become extinct). There is a balance to be struck between messages that raise alarm, without evoking the mechanisms of denial and fatalism that can lead to inaction.

2. Recommendations

Balance and truth:

- When teaching or talking with chldren about cilmate change risks, we have a responsibility not to 'sugar-coat' the climate situation, but to illustrate how climate may soon become an imminent and personal threat to all, whilst presenting a hopeful alternative to inspire agency and motivate change.
- Present 2/3 solutions for every difficult fact. e.g. https://drawdown.org/climate-solutions-101

Solution focussed futures:

- 'The Future we Choose' (Figueres & Rivett Carnac, 2020) is an article which explores two alternative futures in 2050, neatly balancing out the severity of the situation, while presenting a path forward.
- Media within the genre of 'solar punk' offers a utopian vision of a sustainable future.

Dr Louise Edgington
www.ClimatEdPsych.com

Thinking traps: 3. (dis) Continued attention to climate

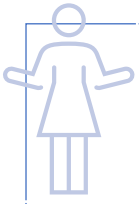
Even if we understand climate change to be a real threat, there are other biases that result in us tending to ignore climate change and carry on as normal.

So even though we are no longer in 'cognitive' denial, we are in denial through our actions – carrying on with our more 'convenient lives'. It's natural for all of us to slip into convenience and familiarity from time to time, but the aim is to maintain awareness of progress towards sustainability.

Here are a selection of the most common biases, from Gifford (2011) and Kahneman (2011):

Technosalvation

The belief that technology or AI alone (e.g. carbon capture options) will save us



Bystander effect

In a large group, we tend to assume that someone else will sort a problem or situation (e.g. governments)

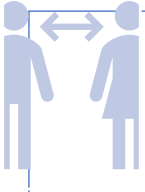
Inconsistent world views

Belief in the power of free-market capitalism or anthropocentrism (that humans are the central being in the universe) isn't compatible with sustainable behaviours

Sunk Costs Fallacy

If time or money has been invested in something (e.g. fossil fuel infrastructure), we tend to hang onto cling to the suboptimal investment

www.ClimatEdPsych.com



Social comparison effect

We are less likely to act if we see others not acting and perceived inequality. e.g. using the justifications 'everyone else is eating meat!'.

3. Recommendations

Embrace imperfection:

- Don't judge yourself or others when you notice a denial mechanisms at play.
- As an educator, model manageable and consistent behaviour changes & actions.
- Show understanding and curiousity for family belief/ biases - this can lead to a productive conversation

Staying vigilent:

- Model staying 'aware' of these mechanisms of denial and share how they may have shown up in your life.
- Look at Gifford's Dragons - a self-inventory of 33 biases
- Consider with pupils - what biases are at play in your school?

Dr Louise Edgington
www.ClimatEdPsych.com

Thinking traps: 4. (not) regulating overwhelm

Apocalyptic or fatalistic thinking is a shortcut that people can take when faced with the enormity of climate change. This can easily lead to inaction and feeling overwhelmed.

It's also not helpful to spread such messages, as it may cause other people to 'give up'.

While some threats may be real, thoughts about what could happen are not *actually* fact.

The anxiety may be worse that it needs to be due to some of the following thinking errors, reinforcing negative thinking patterns:

Climate Chagne Thinking Traps

Saviour Complex

- e.g." I've got to convince them"
- Overassuming responsiblily
- Can lead to burn out.
- You don't have to save the world

Selective attending & doomscrolling

- e.g. "governments are doing nothing"
- Excessive 'bad' news consumption
- Linked to poor mental health
- It can warp your worldview

Catastrophising & Fatalism

- e.g. "what's the point, we're all doomed"
- Can lead to 'giving up',
- Can cause demotivate others
- Projections are not fact, the readlity is more complex

Foreboding Joy (Brown, 2015)

- Hypervigilence
- Always on on look out for threats
- Being unable to relax and enjoy life
- Can lead to burn out.

Overgeneralising & the myth of self interest (Miller & Ratner, 1998)

- e.g. "people only care about themselves"
- Tend to over-estimate others' self-interest

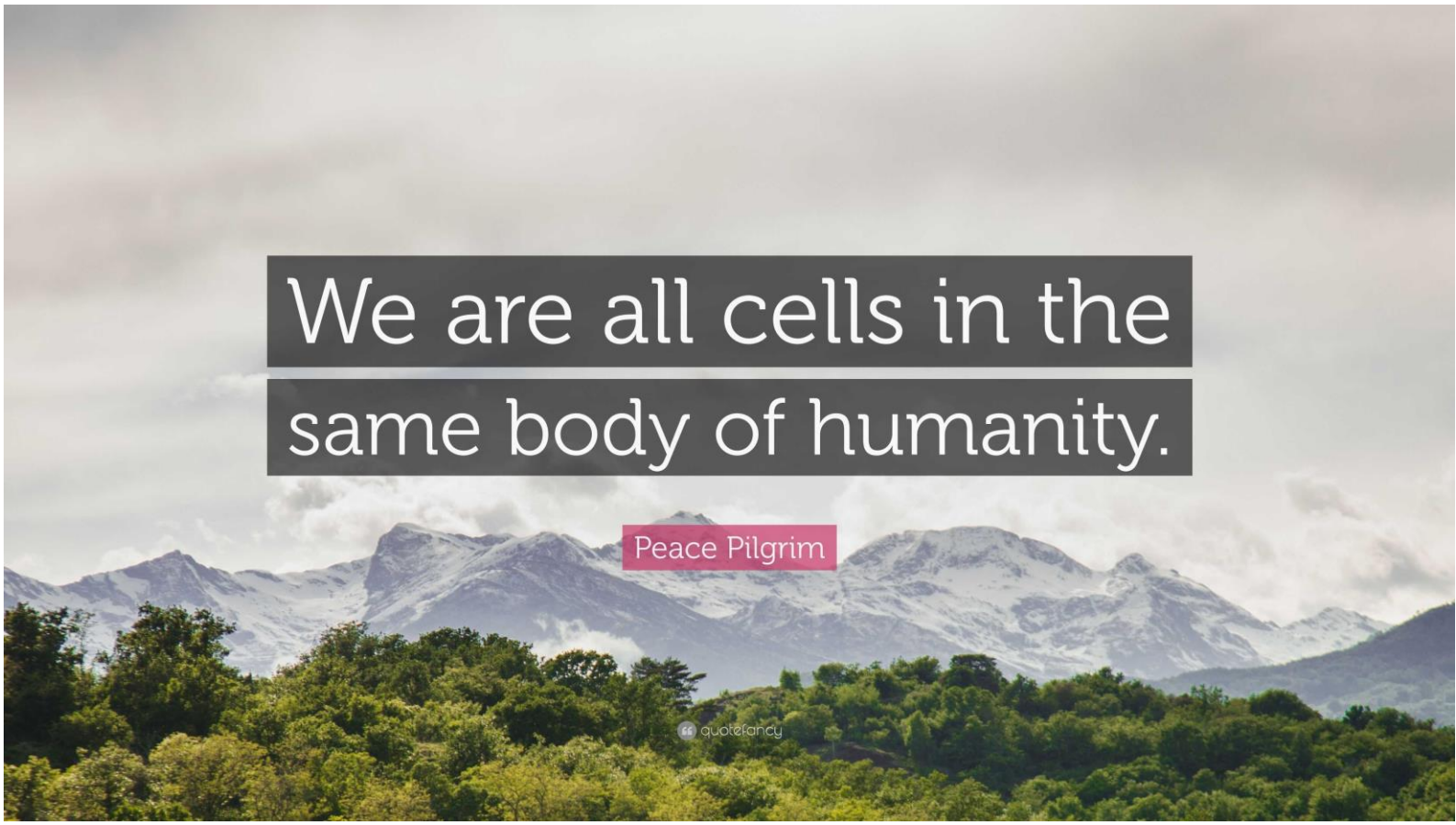
Black and White thinking all or nothing thinking

- e.g. "governments are doing nothing"
- reality is more complex and 'greyscale'

Emotional Reasoning

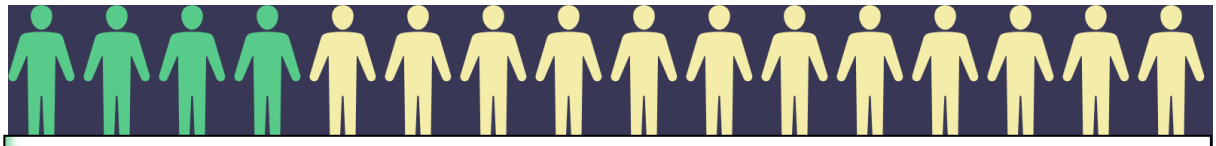
e.g. "I am scared of X, that's the risk
worst fears often reflect past expereinces
we can't know for sure what is most likely

www.ClimatEdPsych.com



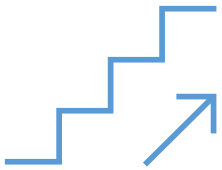
It can also be helpful to prevent overwhelm by retaining a sense of perspective about the individual's role in climate change mitigation and adaptation. While it is true that the actions of one person alone aren't enough to affect the scale of change required, the social comparison effect is bidirectional. Small changes can influence others in, positive ways, making ripples which gather momentum and compound as more and more people join in. No one has to 'save the world' (a very overwhelming responsibility) - we are all responsible for our part.

And if you think that there are too many self-interested people in the world, think again. Miller (1998) has demonstrated the 'Myth of self-interest'. Happily, we tend to overestimate selfish behaviour in others.



Experiments show that just 25% of a group committed to a cause is the tipping point for large scale social change to occur (Centola et al., 2018) www.ClimatEdPsych.com

4. Recommendations



Reframe faulty thinking:

- If a pupil (or yourself) has an unhelpful thinking pattern (e.g. nothing I do makes a difference), acknowledge the validity of their concerns then see if you can modify the statement, one step at a time to take reality into account.

e.g my actions have a small influence on others, I might not see how much that is etc...

Stay local and celebrate:

- Focus on community or smaller scale projects
- Highlighting successes in the area or progress you are making will feel more rewarding, achievable and personal to young people, activating a sense of agency and hope

Harness social comparison

- Get talking and organising, knowing that it's all contributing to social change
- 'Be the change' and explain this effect to pupils

Prioritise wellbeing more generally

- Develop a set of wellbeing practices that you like doing. see guide to eco-emotions
- Model, share and practise these with pupils

References

Department for Education (2022). *Sustainability and climate change: a strategy for the education and children's services systems*. https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy/sustainability-and-climate-change-a-strategy-for-the-education-and-childrens-services-systems

Centola, D., Becker, J., Brackbill, D., & Baronchelli, A. (2018). Experimental evidence for tipping points in social convention. *Science, 360*(6393), 1116-1119. https://doi.org/10.1126/science.aas8827

Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist, 66(4)*, 290. https://doi.org/10.1037/a0023566

Feinberg, M., and Willer, R. (2010). Apocalypse Soon?: Dire Messages Reduce Belief in Global Warming by Contradicting Just-World Beliefs. *Psychological Science, 22 (1), 34-38* *https://doi.org/10.1177/0956797610391911*

Gilbert, D. (2014). *It's the end of the world as we know it (and I feel fine).* Ted-X talk https://www.youtube.com/watch?v=fle_FkILmEQ

Jolley, D. (2013). The social consequences of conspiracism: Exposure to conspiracy theories decreases intentions to engage in politics and to reduce one's carbon footprint. *American Psychologist, 66(4)*, 290. https://doi.org/10.1111/bjop.12018

Figueres, C. and Rivett-Carnac, T. (2020). *The Future We Choose: Surviving the Climate Crisis*. Knopf.

Summaries of the two 2050 scenarios in the Guardian
https://www.theguardian.com/environment/2020/feb/15/worst-case-scenario-2050-climate-crisis-future-we-choose-christiana-figueres-tom-rivett-carnac

https://www.theguardian.com/environment/2020/feb/15/best-case-scenario-2050-climate-crisis-future-we-choose-christiana-figueres-tom-rivett-carnac

Kahneman, D. (2011). *Thinking: Fast and Slow.* Farrar, Straus & Giroux.

Miller, D. T., & Ratner, R. K. (1998). The disparity between the actual and assumed power of self-interest. *Journal of personality and social psychology*, *74*(1), 53. https://doi.org/10.1037/0022-3514.74.1.53

Morton, T. (2013). *Hyperobjects: Philosophy and Ecology After the End of the World.* University of Minnesota Press.

Slovic, P. (2020). *The more who die, the less we care.* Summary of keynote address at the British Psychological Society's online conference (written by Sutton, J.). https://www.bps.org.uk/psychologist/more-who-die-less-we-care

Stoknes, P. E. (2017) *TED talk on 5 defences model*
https://www.ted.com/talks/per_espen_stoknes_how_to_transform_apocalypse_fatigue_into_action_on_global_warming

Wallace-Wells, D. (2019). *The Uninhabitable Earth: A Story of the Future.* Penguin.