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Evidence of Learning E-Portfolio

Contemporary Challenges: Making a Difference ECGE4006P



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IT'S A DISASTER!

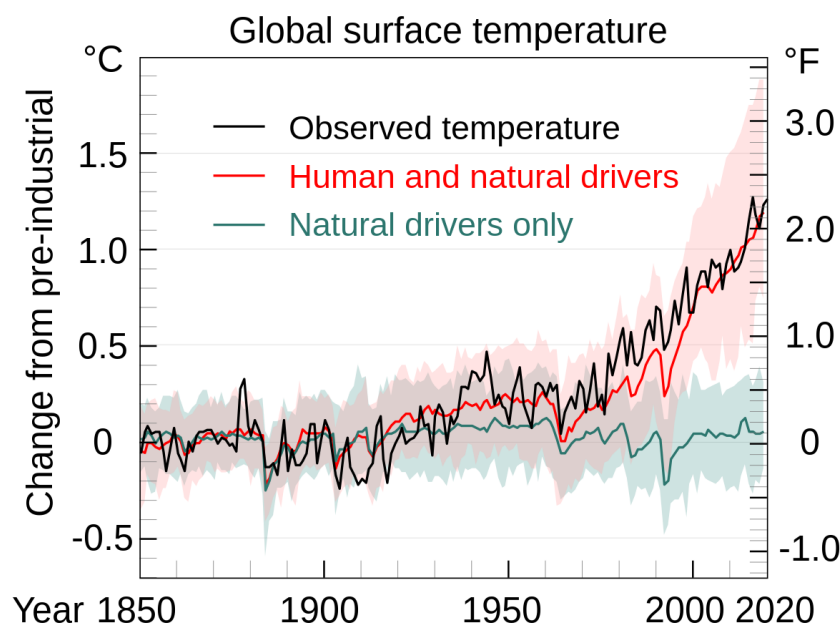
We've all seen the movie.....



The end of the world..... Hurricane, Flood, Tsunami, Deadly Pandemic.....

But that's just in the movies and there's always a hero to save the day!!

2016 to 2020 saw the hottest 5 years on record between 1850 and 2020 (IPCC, 2022). Temperatures in July 2022 reached 40.3°C (104.5°F) here in the UK, the highest temperature ever recorded since records began in 1884 (NCEI, 2023).

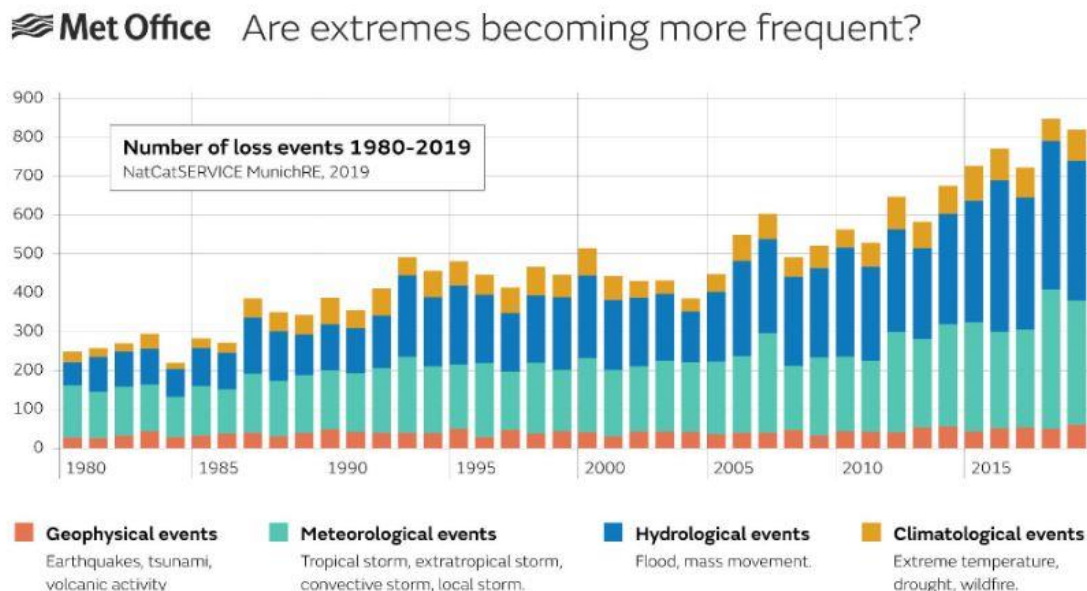


Wikimedia Commons (2021)

Throughout history there have been warmer and cooler periods caused by naturally occurring phenomena, however, global temperatures continue to rise at an alarming rate which can only be attributed to anthropogenic greenhouse gases rather than nature itself (NASA, no date), (Ring et al., 2012), (Stott et al., 2001).



Although for the sun seekers amongst us this may sound idyllic, these rises in temperature are having devastating effects on the earth. Ice in Greenland and Antarctica is melting rapidly with an average of 427 billion tons of ice lost per year (NASA, no date). Sea levels are rising and 90% of the excess heat from anthropogenic greenhouse gases is going into the oceans, making 2022 the hottest the oceans have ever been (Cheng *et al.*, 2023). Increases in the ocean's temperature are causing a change in weather patterns, precipitation and temperatures all over the world (Cheng *et al.*, 2023), (IPCC, 2013), (NOAA Climate.Gov, 2018) leading to more extreme weather events.



(Met Office, 2022)

When climate change pops up in the news, we feel sorry for the polar bears but isn't it just one of those things we have no control over, like floods, wildfires, Covid, the cost of living crisis and no tomatoes in the supermarkets? It's not like we can do much about it from our comfy armchair!

Anyway, surely a bit of climate change just means a few more hot summers right?



WRONG!

If we continue to think this way these news stories will increase and that disaster movie will become reality! Extreme weather, floods, fires, pandemics, food shortages and the cost of living crisis are all linked to climate change. With sea levels rising, temperatures changing and extreme weather becoming more frequent, areas of the earth will become inhabitable and not sustainable for growing food. Migration will increase causing overpopulated areas, pandemics, food shortages, rising prices, war and conflict. Climate change impacts everything across the globe, politics, economics and health, if it continues the world as we know it will change beyond recognition.

It's easy to get lost in day-to-day life, but next time you are rushing from A to B, using the car when you could probably walk, think about how leaving your car at home could reduce your carbon footprint by $\frac{1}{2}$ a ton a year (Brand et al., 2021).



(Pixabay, 2015)



When you are loading the supermarket trolley sky high ask yourself if you are contributing to the 6.6 million tonnes a year of food thrown away by UK households which cause 36 million tonnes of greenhouse gases (Wrap, 2021).

Stop and think before you buy the latest throw-away fashion for your night out and add to the 215 trillion litres of water the fashion industry uses every year (The UN Alliance for Sustainable Fashion, 2022).



Something needs to change..... We need a hero...

Could you be that hero?



Is it all an illusion?

In this digital age, we are surrounded by information. Technology bombards us with digital content 24/7 but how much of this information is **real**?

As adults and educators, we like to think that we can differentiate fake news from fact but can we?



According to the World Economic Forum (2022), there are over 180 different cognitive biases that can affect our perception and thought processes. Between brain heuristics, our own cognitive biases (Tversky, and Kahneman, 1974) and social media algorithms only showing us the content it feels we are interested in and will interact with (House, 2022), it isn't easy to distinguish fact from fiction.



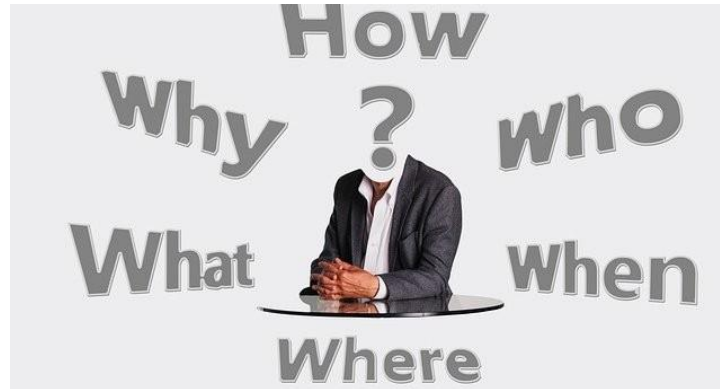
What about the children? They can't be subjected to as much social media bias as we are, **can they?**

A report by Ofcom (2022), concluded that 99% of UK children aged 3-17 went online in 2021, with social media platforms such as YouTube and TikTok being used by 95% of these children. Although most teens believed they could distinguish fact from fiction it was found that only 11% were able to spot a fake news social media post.



These are shocking statistics and although children in Wales were above average at spotting incorrect information online, at 22% (Ofcom, 2022), it is worrying that our children could be exposed to such high volumes of disinformation on a regular basis. How are children supposed to become ethical information citizens as stated in the National Curriculum for Wales (Curriculum and Assessment (Wales) Act, 2021), when surrounded by so much conflicting information?

Children are naturally inquisitive, as an educator it is important to nurture their curious minds and give them the skills to think critically, to challenge, to use open questions using techniques such as Six honest men (Tambey, 2018) to problem solve and to check validity.



(Tambey, 2018)

Giving children an awareness of social media algorithms (House, 2022), false information, epistemic bubbles and echo chambers (Nguyen, 2020), can only encourage a more open mind and help children to seek the truth.

Our world is changing, the world is getting warmer and children need to learn the skills to be resilient and to adapt. If they are going to get through the climate change crisis they will need to work together, think ahead and exercise some self-control, changing their behaviour today to have an impact on tomorrow just like in Mischel, and Ebbesen (1970) famous marshmallow test. Using restorative practice in schools can promote social and community bonds, teach skills needed to resolve conflict and encourage children to problem-solve and work together to create a better future (IIRP, no date).

There are a wealth of skills that can help children deal with climate change many of these reflect John Dewey's experiential education theories (Bates, 2015). Our education system should allow children to have access to the bigger picture, to question, to think critically and learn from their own and others' experiences. Educating in an encouraging, respectful, learner-led environment which encourages collaboration, problem-solving and working towards common goals allows the children to develop their own solutions to the climate change crisis.



With 9 out of 10 children worried about climate change and 81% feeling their views are not being heard (UNICEF UK, 2021) isn't it about time we stop and listen and teach the children the skills they really need for the future?

“Education is the passport to the future, for tomorrow belongs to those who prepare for it today.” Malcolm X (Blackpast, 2007)



See the light!



Dealing with the climate change crisis is not going to be an easy fix. With our brain's cognitive functions thinking more about the here and now rather than the future, and modern technology we feel we cannot live without, which according to the United Nations Environment Programme (2021) causes between 2% and 3% of global greenhouse gas emissions, we are going to have to do something radical if we are going to solve the climate crisis.



The anthropogenic effects we see today are evidently caused by our attempts at problem-solving which have inadvertently led us to “jump out of the frying pan into the fire!” so the way we look to solve problems needs to change. Climate change is a non-linear problem which will require a solution which puts the world's survival at the heart.



It is believed that Design thinking is a way in which some of the world's “Wicked problems” like climate change and education can be tackled (Rittel and Webber, 1973), (Buchanan, 1992).

“Design thinking is both an ideology and a process, concerned with solving complex problems in a highly user-centric way.” (Stevens, 2023)

Design Thinking Process



In order to provide solutions design thinking needs to be human-focused with the user at the centre. Two-way communication is essential for this process which if done correctly, could avoid unnecessary products being created and valuable resources being used. Reducing the amount of products ending up in landfill and lowering the 60% of global greenhouse gasses consumed by households resulting in a more sustainable future (Ivanova et al., 2016).



Design thinking has been used by businesses for many years and there is evidence to suggest that implementing design thinking in schools can encourage teamwork, develop critical thinking, improve communication, questioning and analytical skills (Noel and Liub, 2017), (Noweski et al., 2012). When using design thinking to solve real-world problems children are more ethically aware, open-minded, disciplined and develop the highly sought after skills required for the world of work (Koh et al., 2015).

Although not everyone agrees with the design thinking being taught in education, with Morrison (2014) stating that “design thinking requires a breadth of knowledge and experience from various disciplines which is not present in most students” one may argue that if students are not given the opportunity to engage in these skills would they ever have the opportunity to gain this knowledge or experience?



With the National Curriculum for Wales (Curriculum and Assessment (Wales) Act, 2021) and the Wellbeing of Future Generations Act (Wales) (2015), many school children are starting to use design thinking to work towards The Global Goals (2023) in a bid to make them more ethically informed citizens.



With the new curriculum for Wales moving away from more linear type learning isn't it an ideal opportunity to incorporate more opportunities for Design thinking?

Whatever your feelings on climate change or design thinking, it is evident that something needs to change, the fact remains that we need solutions.

Why not put Design thinking firmly on the curriculum and give the children the opportunity to gain the skills needed to work towards solving the climate change crisis for their own future and the future of their children?



References:

Bates, B. (2015) *Learning Theories Simplified... and how to apply them to teaching*. SAGE Publications Limited.

BlackPast (2007) *(1964) Malcolm X's Speech at the Founding Rally of the Organization of Afro-American Unity*. Available at: <https://www.blackpast.org/african-american-history/speeches-african-american-history/1964-malcolm-x-s-speech-founding-rally-organization-afro-american-unity> (Accessed: 6 April 2023).

Brand, C. et al. (2021) 'The climate change mitigation impacts of active travel: Evidence from a longitudinal panel study in seven European cities', *Global Environmental Change-human and Policy Dimensions*, 67, p. 102224. Available at: <https://doi.org/10.1016/j.gloenvcha.2021.102224> (Accessed: 30 March 2023).

Buchanan, R. (1992) "Wicked Problems in Design Thinking," *Design Issues*, 8(2), p. 5. Available at: <https://doi.org/10.2307/1511637> (Accessed: 10 April 2023).

Cheng, L. et al. (2023) 'Another Year of Record Heat for the Oceans', *Advances in Atmospheric Sciences* [Preprint]. Available at: <https://doi.org/10.1007/s00376-023-2385-2>. (Accessed: 20 March 2023).

Curriculum and Assessment (Wales) Act 2021 Available at: <https://www.legislation.gov.uk/asc/2021/4/contents/enacted> (Accessed: 6 April 2023).

House, B. (2022) 'What are social media algorithms? Advice for parents and carers' *Childnet*, [blog]. 5 December. Available at: <https://www.childnet.com/blog/algorithms/> (Accessed: 6 April 2023).

IPCC (2013) *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Available at: <https://www.ipcc.ch/report/ar5/wg1/> (Accessed: 18 March 2022).

IPCC (2022) 'AR6 Climate Change 2022: Mitigation of Climate Change — IPCC'. Available at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_TS.pdf (Accessed: 18 March 2023).

Ivanova, D. et al. (2016) "Environmental Impact Assessment of Household Consumption," *Journal of Industrial Ecology*, 20(3), pp. 526–536. Available at: <https://doi.org/10.1111/jiec.12371> (Accessed: 11 April 2023).

Koh, J.H.L. et al. (2015) *Design Thinking for Education: Conceptions and Applications in Teaching and Learning*. Springer.

Met Office (2022) *Effects of climate change*. Available at: <https://www.metoffice.gov.uk/weather/climate-change/effects-of-climate-change> (Accessed: 20 March 2023).

Mischel, W. and Ebbesen, E.B. (1970) 'Attention in delay of gratification', *Journal of personality and social psychology*, 16(2), pp. 329–337. Available at: <https://doi.org/10.1037/h0029815> (Accessed: 6 April 2023).

Morrison, D. (2014) "Why 'Design Thinking' Doesn't Work in Education," *Online Learning Insights*, 2 January. Available at: <https://onlinelearninginsights.wordpress.com/2013/08/06/why-design-thinking-doesnt-work-in-education/>.

NASA (no date) *The Causes of Climate Change*. Available at: <https://climate.nasa.gov/causes/> (Accessed: 27 March 2023).

NCEI (2023) *Annual 2022 Global Climate Report | National Centers for Environmental Information (NCEI)*. Available at: <https://www.ncei.noaa.gov/access/monitoring/monthly-report/global/202213> (Accessed: 20 March 2023).

Nguyen, C.T. (2020) 'ECHO CHAMBERS AND EPISTEMIC BUBBLES,' *Episteme*, 17(2), pp. 141–161. Available at: <https://doi.org/10.1017/epi.2018.32>. (Accessed: 6 April 2023).

NOAA Climate.Gov (2018) '2017 State of the climate: Ocean heat content', 1 August. Available at: <https://www.climate.gov/news-features/featured-images/2017-state-climate-ocean-heat-content#:~:text=The%20upper%20ocean%20and%20deeper,depths%20of%20700%E2%80%92%932%C000%20meters.> (Accessed: 27 March 2023).

Noel, L.-A. and Liub, T.L. (2017) "Using Design Thinking to create a new education paradigm for elementary level children for higher student engagement and success," *Proceedings of DRS [Preprint]*. Available at: <https://doi.org/10.21606/drs.2016.200> (Accessed: 10 April 2023).

Noweski, C. et al. (2012) "Towards a Paradigm Shift in Education Practice: Developing Twenty-First Century Skills with Design Thinking," *Springer eBooks*, pp. 71–94. Available at: https://doi.org/10.1007/978-3-642-31991-4_5 (Accessed 10 April 2023).

Ofcom (2022) *Children and parents: media use and attitudes report 2022*. Available at: <https://www.ofcom.org.uk/research-and-data/media-literacy-research/publications> (Accessed: 96 April 2023).

Pixabay (2015) *Assistance Barefoot Carbon*, Pixabay. Available at: <https://pixabay.com/illustrations/assistance-barefoot-carbon-990332/> (Accessed: 30 March 2023).

Ring, M. et al. (2012) 'Causes of the Global Warming Observed since the 19th Century', *Atmospheric and Climate Science*, 02(04), pp. 401–415. Available at: <https://doi.org/10.4236/acs.2012.24035> (Accessed: 27 March 2023).

Stevens, E. (2023) "What Is Design Thinking? A Comprehensive Beginner's Guide," *CareerFoundry*, 4 January. Available at: <https://careerfoundry.com/en/blog/ux-design/what-is-design-thinking-everything-you-need-to-know-to-get-started/> (Accessed: 10 April 2023).

Stott, P.A. et al. (2001) 'Attribution of twentieth century temperature change to natural and anthropogenic causes', *Climate Dynamics*, 17(1), pp. 1–21. Available at: <https://doi.org/10.1007/pl00007924> (Accessed: 27 March 2023).

Tambey, A. (2018) '6 Critical Questions To Achieve Success: The Right Way!,' *Linkedin.com* [blog]. 20 February. Available at: <https://www.linkedin.com/pulse/six-simple-ways-learn-do-anything-anand-tambey> (Accessed: 8 April 2023).

The Global Goals (2023) *Overcoming the World's Challenges - The Global Goals*. Available at: <https://www.globalgoals.org/> (Accessed: 10 April 2023).

The UN Alliance for Sustainable Fashion (2022) *Home - The UN Alliance for Sustainable Fashion*. Available at: <https://unfashionalliance.org/>. (Accessed: 30 March 2023).

Tversky, A. and Kahneman, D. (1974) 'Judgment under Uncertainty: Heuristics and Biases', *Science*, 185(4157), pp. 1124–1131. Available at: <https://doi.org/10.1126/science.185.4157.1124> (Accessed: 7 April 2023).

UNICEF UK (2021) '*9 in 10 children are worried about climate change, finds new report from VotesforSchools and UK Committee for UNICEF (UNICEF UK)*', 22 October. Available at: <https://www.unicef.org.uk/press-releases/9-in-10-children-are-worried-about-climate-change-finds-new-report-from-votesforschools-and-uk-committee-for-unicef-unicef-uk-2/> (Accessed: 6 April 2023).

United Nations Environment Programme (2021) 'With new pact, tech companies take on climate change,' *UNEP*, March. Available at: <https://www.unep.org/news-and-stories/story/new-pact-tech-companies-take-climate-change#:~:text=The%20tech%20sector%20is%20responsible,of%20global%20greenhouse%20gas%20emissions> (Accessed: 10 April 2023).

Well-being of Future Generations (Wales) Act 2015. Available at: <https://www.legislation.gov.uk/anaw/2015/2/contents/enacted> (Accessed: 10 April 2023).

Wikimedia Commons (2021) *Global Temperature And Forces.svg*. Available at: https://commons.wikimedia.org/wiki/File:Global_Temperature_And_Forces.svg. (Accessed: 30 March 2023).

World Economic Forum (2022) '*24 cognitive biases that are warping your perception of reality*'. Available at: <https://www.weforum.org/agenda/2021/11/humans-cognitive-bias-mistake> (Accessed: 6 April 2023).

WRAP (2021) 'Food surplus and waste in the UK – key facts', Available at: <https://wrap.org.uk/resources/report/food-surplus-and-waste-uk-key-facts>. (Accessed: 30 March 2023).