My initial title for this talk references my attempts to apply environmental heterodoxy as decolonial pedagogy, and I will start by saying a little bit about this as context for how I came to EcoTypes. But as is often the case, preparing this contribution has shifted focus somewhat, and ultimately, I want to share today some reflections on the work that comes *after* we acknowledge environmental difference, and move towards equipping students to work with it. Serious games can allow students to experiment with alternative environmental imaginaries, but their challenges and limitations also reveal much about how we think about and work with difference.

Video by SHVETS production: https://www.pexels.com/video/people-playing-dice-9058102/

In recent years, calls to decolonise curricula have grown in UK higher education, and there has been a lot of debate about what this means and how to 'do' it. Some geographical knowledges and forms of knowledge production are deeply embedded in colonial projects. For example, in many countries, European meteorological techniques displaced indigeous knowledges as colonial powers sought to understand new environments in their own terms (Mahoney and Endfield), and a tension remains even today around how these different forms of climate knowledge are valued in decision-making (Yeh, 2016) . In the context of the EcoTypes framework, we might see this as a tension between old and new forms of knowledge.

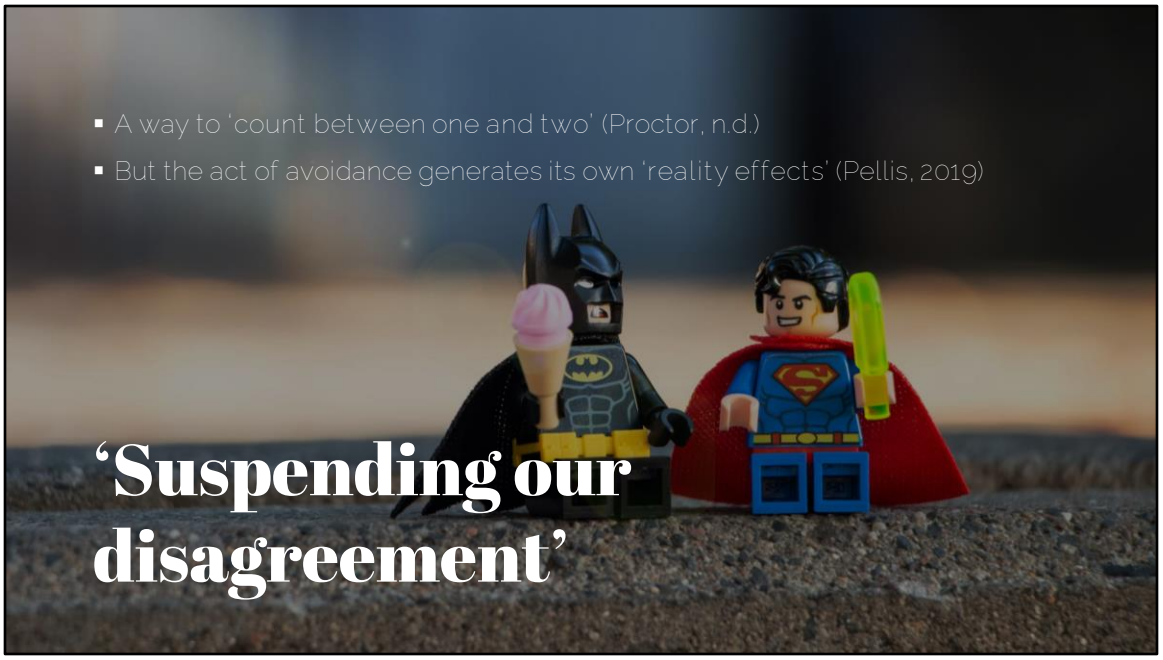
And of course, climate impacts themselves and many of their solutions have roots in the same problematic power relations. As such, the environmental crisis in which we find ourselves offers many examples where one group pursuing their preferred solution actively makes life more difficult or tramples the rights of another group - think of hydropower dam projects displacing indigenous peoples, or the social and environmental side effects of mining rare earth metals to support a surge in electrifying transport.

> **"Much greater appreciation across epistemological differences is necessary for inclusive collaborative efforts, which in turn requires explicit discussion of what those differences are."**
>
> Yeh, E.T., 2016. 'How can experience of local residents be "knowledge"?' Challenges in interdisciplinary climate change research. *Area*, 48(1), pp.34-40.

We can diversify curricula to better represent diverse knowledges, student histories and experiences. But students (and teachers!) also need pedagogies that help them to make sense of knowledges, histories and experiences different to their own, that probe perceptions of 'valid' knowledge, and perhaps, support reconfiguration of relations between different knowledges.

As Yeh writes, we need to have explicit discussions of our differences if inclusive collaboration is ever to be realized.

And this is how I came to incorporate EcoTypes in my teaching, to support students in recognizing their own positionality when it comes to their environmental beliefs.



As Jim explained, engaging across difference is a crucial skill for the next generation of environmental change-makers and despite a collective concern for environmental issues, we frequently observed that students are divided on the root causes of, and solutions to, environmental problems. A common refrain, when we encounter these differences in classroom debates, is to 'agree to disagree'. I've come to frame this more like 'suspending our disagreement', as it seems more reflective of what's really happening, which is that the issue has not been resolved but 'parked'.

It's an avoidance of conflict that's only possible when the stakes are low, as in academic debates where the argument can be dropped when students leave the classroom. Importantly, the extent to which climate change and environmental crisis is a lived reality for students, or their families, it still a very uneven geography. Which means some students might be more readily able to 'park' debates than others.

The act of avoidance generates its own 'reality effects', meaning 'agree to disagree' is not a non-action.

How can we better equip students to navigate these paradoxes of difference? Reflecting on there concept of imaginaries, serious games can an interface between our current environmental imaginaries and alternative ones we can embody for a time through games. In theory, they let us experience real-world issues and complications in a 'safe' space for learning - one where we can experiment with approaches and learn from mistakes, unlike the real world where 'wicked' environmental problems morph and the decision-making landscape changes underfoot with each action we take. But there are some crucial challenges with realising this potential.

Challenge #1: it's only a game

When there are no to low stakes, students might reproduce that dynamic of 'suspending our disagreement', compromising far more readily than they might in the real world. Some educators overcome this by getting students to make small wagers in games, or offering a nominal prize, though we can also try to build emotional investment through building immersion. This might include offering students the opportunity to be involved in world-building so that the game becomes an act of shared imagination.

When my students play Fishbanks, a fisheries management simulation, over the course of several class sessions, they have the time to form identities and alliances, have deep disagreements over trade negotiations and recover to reach a resolution. The emotional investment is high, but the simulation is more realistic for it.

But a caveat: it's also well-documented that being immersed in a game can have dissociative effects on behaviour, where the imagined self is separate from the true self. Particularly when a game asks students to role-play as a stakeholder, it can be tempting to slide into caricature, emphasising difference (or perceived difference), to ultimately produce a cast of stakeholders that are perhaps *more* entrenched and intractable than many encountered in the real world!

Working with these differences is not a linear path and can create conflict. Arao and Clemens' (2013) writing on safe spaces versus brave spaces is apt here. In their work with students, they found a tendency to conflate safety with comfort, but having authentic conversations with people who have a

very different perspective may be deeply uncomfortable.

Challenge #2: 'in it to win it'

A huge part of the appeal in any game is to students' competitive nature. A lot of environmental games have some kind of economic or quantified dimension to them, and suddenly, even the most anti-capitalist student feels the need to win. Combined with the game's very unreality, this can lead some students to look for shortcuts. In instance, in Fishbanks, teams could use the free-play mode of the game to attempt to understand the game's algorithms and work out what level of fishing would be sustainable. Flor et al. observe this trend in e-learning, too, and refer to it as the 'gamers agenda': the intent to win by outsmarting the system. But importantly for this discussion, by shifting focus to the dynamics of the game and presenting a 'right' answer, the need to work with difference is eliminated.

Some games don't have this economic dimension, or an algorithm to hack, and centre consensus-building as a win condition. In Heattown, a role playing simulation, students take on the persona of townspeople negotiating different drought preparedness plans. Students are given a range of possible policy combinations to assess and debate. A 'win' might be arriving at a solution everyone is satisfied with, from within the set. But as Sarewitz point out, sometimes in real negotiations we concede on one point to build capital for another. Consensus of these sort represents a political balance of the issues on the table, or another form of 'toleration' as a way to work with difference.

But a win might also be framed as getting as many of your group's proposals through as possible, or conceding as little as possible. As in the real world, frustrations can arise and progress might be impeded. There is perhaps another polarity here, between prioritising the common good versus individualism. Of course, in a classroom, we can choose to define what 'winning' looks like, or facilitate

students to agree a definition, but again, this can become another thing we ‘suspend our disagreement’ about.

Open-ended games, in which there is no pre-defined ‘win’ state, perhaps offer the best playground for exploring environmental imaginaries. New Shores, an online multiplayer game in which players settle on a pristine island and collectively govern themselves, is one such game. There is no ‘goal’ unless participants define one. Players can choose to build their personal wealth or work for the common good. But as Hajer and Versteed (2019) note, it can be hard to imagine possible future worlds. They argue that this is because reliance on fossil fuels is so deeply embedded in our current one, and available imaginaries are often glossy, corporate visions of futures dominated by ‘smart’ fixes. The taproot of fossil capitalism certainly seems to make accumulation the default ‘win’ state, even when a game itself doesn’t prescribe this, and students’ own environmental values don’t seem to align with this.

If students are to work with environmental heterodoxy in the 'real world', they must feel empowered to imagine, to rethink what 'winning' means, and create futures that honour their environmental values and differences. How do we as educators facilitate that process?

Games certainly seem to have potential, but they can be unpredictable, with the experience sometimes reinforcing the dynamics of conflict avoidance or winning at all costs, neither of which seems a productive model for working with the realities of difference. Importantly, studies which evaluate the use of educational games often emphasize usability – how clear were the instructions or how intuitive is the user interface - rather than delving into how participants are encountering the game cognitively.

With that in mind, I'd like to close by saying that I'd really like to hear from you. If you teach with games, please share with me your experiences. If you have other ways of teaching skills for dealing with environmental difference, let me know. We really need these resources, and more critical reflection on whether they are preparing our students effectively for working with environmental difference outside the classroom.

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