6-7-2024

The wicked problem of climate change and the challenge of engagement: Exploring educational approaches and possibilities for information literacy

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The wicked problem of climate change and the challenge of engagement:
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CAPAL 2024
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Land acknowledgement

Wicked problems and information literacy

"Wicked problems" (Rittel & Webber, 1973)

- Complex and unbounded

- Bound up in complex systems and structures

- Have no complete or simple solutions, instead interventions might address parts of the problem

- Require collective work across domains

Challenges of seeking and evaluating information when…

- information can overwhelm, confuse, or provoke anxiety

- science is evolving

- motivations behind messaging, proposed solutions, and public policies are complex, multiple, and often nontransparent

- there is at times a mismatch between science and public policies and messaging

The discomfort of uncertainty

- Affective dimensions of engaging with wicked problems

- Differing views about:

  - What the problem is

  - Productive ways to engage with the problem

  - How to respond to the difficult emotions that the issue evokes (e.g., uncertainty, grief, despair/hope)

Challenges of engaging critically with information about complex issues

- Acknowledging uncertainty and unknowns

- Recognizing our own assumptions and biases

- The (often invisible) roles of emotion and affect

- Balancing healthy skepticism and trust in expertise

Epistemological questions

- How do we know what we know?

- How do we trust that knowledge?

- When is it useful to question/reassess that knowledge?

The wicked problem of climate change

Shifting perspectives on climate change

- Less explicit climate denial

- Increasingly visible reminders of CC globally, but affecting different communities to varying degrees

- Growing discussions about eco-anxiety and ecological grief

- Many proposed solutions have unknown or negative downstream effects (e.g., carbon capture)

Growing recognition of the limits of individual lifestyle changes

- "Greenwashing" and a focus on individual consumer choice distract from the responsibility of large corporations (see, for example, Roxburgh, 2022)

- The need for systemic and structural change

The narrative of consumer choice

"[T]he biggest and most successful lie it [the fossil fuel industry] tells is this: that the first great extermination is a matter of consumer choice. In response to the *Guardian*'s questions, some of the oil companies argued that they are not responsible for our decisions to use their products. But we are embedded in a system of their creation – a political, economic and physical infrastructure that creates an illusion of choice while, in reality, closing it down." (Monbiat, 2019)

Sustainability as paradox

"Sustainability appears in university contexts as though it exists as an achievable goal - something that is already there with unquestioned preconceptions of what it may include…. Such an approach that echoes mainstream approaches to sustainable development has been argued to maintain the current unsustainable system (Stein et al., 2022). It actively stifles imagination and radical futurity, and thus prevents alternative ways of living in and understanding the world." (Barrineau et al. 2022, p. 103062)

"Radical futurity"

"the future does not exist yet, but stretches across from the not-yet known, beyond the not-yet possible to the not-yet imaginable" (Barrineau et al., 2022, p. 144)

Wicked problems and education for sustainable development

UNESCO's Education for Sustainable Development: ESD for 2030

Varied messaging about:

- the roles of individuals and collectives
- the relationship between sustainability and economic growth

Education for sustainable development (ESD) - UNESCO

"Education for sustainable development (ESD) gives learners of all ages the knowledge, skills, values and agency to address interconnected global challenges including climate change, loss of biodiversity, unsustainable use of resources, and inequality. It empowers learners of all ages to make informed decisions and take individual and collective action to change society and care for the planet." (UNESCO, 2024)

UNESCO's ESD for 2030: Key Reflection 1

"**Transformative action:** Fundamental changes required for a sustainable future start with individuals. ESD has to place emphasis on how each learner undertakes transformative actions for sustainability, including the importance of opportunities to expose learners to reality, and how they influence societal transformation towards a sustainable future." (p. 18)

UNESCO's ESD for 2030: Key Reflection 2

"**Structural changes:** ESD must pay attention to the deep structural causes of unsustainable development. A **balancing act between economic growth and sustainable development** is needed and ESD should encourage learners to explore alternative values to those of consumer societies, as well as having a structural view on how to address ESD in the context of extreme poverty and vulnerable situations."
(p. 18)

Critiques of Education for Sustainable Development (ESD) (1/2)

"Education for Sustainable Development Goals (ESDG) are underpinned by goals which prioritise social and economic considerations (business-as-usual) at the expense of ecological issues" (Barrineau et al., 2022, p. 144)

Critiques of Education for Sustainable Development (ESD) (2/2)

- "The assumptions of and orientations towards futures limits the purpose of education to being an instrument to reach outcomes defined by those in power" (Barrineau et al. 2022, p. 103062)

- "A challenge of education is therefore to 'unmask' these futures, i.e. to reveal the beneficiaries and who is disadvantaged in prevalent futures (Milojevic, 2005)." (Barrineau et al. 2022, p. 103062)

Education for sustainable development (ESD) and anticipatory emotions

Ojala (2016, 2017) envisions ESD that involves:

- Critical emotional awareness and trustful relationships - necessary for hope to be transformative

- Imagining new futures

Radical futurity and emergentist education

Barrineau et al., 2022 similarly advocate for:

- Emotions to be given space in educational settings

- Acknowledging the "paradox of sustainability" (commonly framed in terms of individual action and as something with already known solutions)

- Ethics of care that centers community and interrelatedness

Climate Change, Cognition, & Emotion

The "information deficit model" (Boykoff, 2019)

- Idea that a lacking public response to climate change is due to a lack of good information

- Research that challenges this model
  - Higher levels of information about global warming correlated with less concern and sense of personal responsibility (Kellstedt, Zahran, and Bedlitz, 2008)
  - Understandings that climate change has no easy solution correlated with ceasing to engage with the issue (Krosnick et al., 2006)

Coping through disengagement with challenging emotions

- Research showing emotional distancing from uncomfortable emotions about climate change as a means of coping (Norgaard, 2011; Ojala, 2012; Olausson, 2011)

- Collective "psychic numbing": Hiroshima survivors in states of shock, in which they avoided the traumatic experience and could not respond rationally to their environments (Lifton & Mitchell, 1995)

Uneasy thoughts and feelings

- Eco-anxiety and ecological grief

- Cognitive dissonance

- Varying degrees of denialism and minimization

- Mixed experiences of hope and despair

Complex emotions and social acceptability

- Responses generally viewed more negatively: denial, disengagement, dissonance, worry, anxiety, uncertainty, overwhelm, despair, grief, paralysis

- Responses generally viewed more positively: hope, action, community building, solidarity, ethics of care

- Questions and research about when/how these different responses can be generative or harmful

Anxiety, worry, and hope

Ojala's 2017 literature review shows these emotions are complex. Research shows eco-anxiety and worry as:

- necessary for critical engagement with complex social issues (Brader, 2006; Marcus et al., 2000; Marcus, MacKuen, & Russell Neuman, 2011; Valentino, Hutchings, Banks, & Davis, 2008)

- Detrimental to mental health (Doherty & Clayton, 2011; Pihkala, 2020; Sanson & Van Hoorn, 2019)

The complexity of hope

Hope exists amidst uncertainty about the future. It can take different forms and functions.

- False hope

- Passive hope

- Active hope

- Critical hope

Critical hope

- "based in an acknowledgement of the negative, a positive view of preferable futures, the possibility of societal change, and that is related to concrete pathways" (Ojala, 2016, p. 42)

- Involves acknowledgement of challenging emotions like fear, failure, loss, and grief (Facer, 2019, p. 8)

The coexistence of hope and despair?

Often emotions like hope and despair are viewed as diametrically opposed, but some argue that they can co-exist and be part of constructive responses.

E.g. Episodic despair (Huber, 2023): "[I]f we give space to despair, we will understand the full force of our predicament, so that a new and more authentic form of hope can arise." (Huber, 2023, p. 90)

Implications for Information Literacy

Acknowledging the discomfort of uncertainty

- Affective dimensions of engaging with wicked problems

- Differing views about:

  - What the problem is

  - Productive ways to engage with the problem

  - How to respond to the difficult emotions that the issue evokes (e.g., uncertainty, grief, despair/hope)

Acknowledging the limits of information literacy

- The difficulty of acknowledging uncertainty and unknowns

- The challenge of recognizing our own assumptions and biases

- The (often invisible) roles of emotion and affect

- Balancing healthy skepticism and trust in expertise

Acknowledging challenges of seeking and evaluating information when…

- information can overwhelm, confuse, or provoke anxiety

- science is evolving

- motivations behind messaging, proposed solutions, and public policies are complex, multiple, and often nontransparent

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Epistemological questions

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Acknowledging affect and emotion

"[W]e do not do research only mentally; emotional, spiritual, and physical health must be factors in how we teach students about accessing information." (Loyer, 2018, p. 155)

Emotion and new lines of inquiry

"[T]he failure of [information literacy] models … to pay attention to the learner's emotional response to information and the emotional factors of their information seeking behaviour erases a crucial component of their personhood, one which might engender new lines of inquiry if properly acknowledged and addressed." (Hewitt, 2023, p. 125)

Valuing uncertainty and open inquiry

"[A]rgument-centered approaches [to information literacy instruction] can mislead students into thinking that successful research involves proving one's thesis with a collection of sources to "back up" one's claim… . True understanding recognizes the demarcation of areas of disagreement and directions for further research as significant achievements in learning." (Lenker, 2023, p. 561)

Transformative learning theory of adult learning (Mezirow, 1978; 1997)

- Learners face a "disorienting dilemma" that catalyzes critical reflection

- Critical reflection involves investigation into assumptions (one's other and others')

- Ultimately leads to a change in worldview (perspective transformation)

- Cognitive dissonance is part of the process (Wals, 2007; Wals, 2010)

Investigating assumptions through critically reflective practice

"Becoming aware of our assumptions is a puzzling and contradictory task. Very few of us can get very far doing this on our own. No matter how much we may think we have an accurate sense of ourselves, we are stymied by the fact that we are using our own interpretive filters to become aware of our own interpretive filters…" (Brookfield, 1998, p. 197)

Critically reflective "lenses" (Brookfield, 1998)

"To become critically reflective, we need to find some lenses that reflect back to us a stark and differently highlighted picture of who we are and what we do. … Viewing what we do through these different lenses alerts us to distorted or incomplete aspects of our assumptions that need further investigation." (Brookfield, 1998, p. 197)

Collective critically reflective practice

"As we talk to each other about critical events in our practice, we start to realize that individual crises are usually collectively experienced dilemmas. The details and characters may differ, but the tensions are essentially the same." (Brookfield, 1998, p. 198)

For further reflection: Balancing tensions

- Recognizing established knowledge and areas of uncertainty

- Recognizing areas of open inquiry and disagreement

- Cultivating spaces of care and recognizing the importance of emotions, while also communicating our roles as educators, not mental health care professionals

- Fostering student choice and agency

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