

**Fueling Change: Rethinking Education for Climate Justice in BC Schools**

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## **Introduction**

Our community partner, Grace Nosek, is a legal scholar currently pursuing her PhD, focusing on climate justice and how it's deeply intertwined with fossil fuel narratives. She expressed to us that there are more people who believe in climate change but don't think there are any solutions, than there are climate deniers. Why is this? Grace showed us how the fossil fuel industry is among our generation's most influential storytellers, creating narratives around climate change and our future that confuse and disempower the public. These narratives are becoming widespread and normalized within the media, everyday discourse and especially education. Grace has already identified the negative effects on students and the wider public of this kind of infiltration within schooling, pointing heavily to doomism and climate anxiety. However, she told us that teachers in B.C. do not currently have the resources to understand and respond to this misinformation, but are hungry for tools to help. This aligns with the ideas of our other community partner from Be the Change Earth Alliance, George Radner, who also expressed a lack of resources available for teachers to address misinformation in existing resources.

Therefore, this is an exploratory study looking at the extent and dynamics of fossil fuel misinformation within B.C climate education; which will be coupled with a toolkit that teachers can use to challenge these narratives in their classroom and garner more grounded hope.

## **Research Team and Reflexivity**

Our group is centrally concerned with the idea of climate coloniality and how we as students may be contributing to it through our work. Specifically, we understand the role of countries in the Global North, like Canada, in supporting the movement for climate justice in

order to make reparations for those that are already suffering the brunt of this catastrophe in the Global South. We think it is vitally important for the youth of the Global North, who have more than ever at their fingertips today, to be educated in a way that inspires them to be change-makers. This work is especially important to us because we have seen the firsthand effects of our peers being affected by fossil fuel misinformation and the effects this is having on collective action. We acknowledge the blindspots that may occur in our research as we experience the privilege of being able to operate from the Global North. This is why we're centering this research only in BC and focusing on climate justice as a key factor in our work.

### **Literature Review**

Eaton & Day's (2020) article about "petro-pedagogy" highlights the multidimensional nature of the fossil fuel industry's regime of obstruction (Carroll et. al, 2020; Tannock, 2020), focusing on how education is used to obstruct the transition away from fossil fuels. The term "petro-pedagogy" refers to "how teaching practices and resources work to center, legitimize, and entrench a set of beliefs relating to climate change, energy, and environmentalism that align with the interests and discourses of oil industry actors" (Eaton & Day, 2020, pg 458). Because this article explores fossil fuel misinformation in Saskatchewan (S.K), Canada, and utilizes a highly applicable methodology, it will be central for our discussion about B.C. However, an important point to note is that S.K. is Canada's second largest oil and gas producing province, with many teachers and students also linked to the industries; necessary to keep in mind when looking at differing contexts (Eaton & Day, 2020). The methodology includes a discourse analysis of teaching materials as well as a set of interviews intended to fill in the gaps from their literature review. Since ours is intended to be an exploratory study, we believe this methodology and the

resulting narratives identified will be extremely useful in exploring similar narratives being seeded into B.C curricula and their effects.

According to Eaton & Day, there has been an overall neoliberalization of education in Canada since the 1970s. As a result, it has been impacted by deregulation, privatization and ultimately budget cuts, with civil society expected to pick up the slack. This has cleared the way for fossil fuel companies to pose as responsible environmental actors and endow overwhelmed teachers with easy-to-use, ready-made lesson plans and activities (Molnar 2006; Sukarieh and Tannock 2009; Robertson 1998) Furthermore, this has changed the focus of education to be more on the production of “standard-tested, job-ready workers” (Eaton & Day 2020, pg459; see also Davidson-Harden and Majhanovich 2004; Noonan and Coral 2015) while simultaneously disregarding other modes of understanding the world, including Indigenous ways of knowing (Yanez et al., 2019). Tannock (2020) extends this analysis and shows how this has also led to an overall focus on neoliberal STEM education that frames climate change within the realm of physical science instead of social justice; subsequently promoting individual solutions like measuring water quality in a local river instead of collective action (Eaton & Day, 2020). Furthermore, this neoliberal model of education tends to uncritically embrace STEM as apolitical and inherently good, thus ignoring the role that this uncritical embrace has played in perpetuating the climate crisis itself (Tannock, 2020; Eaton & Day, 2020).

This shift in education has given rise to a number of narratives that are designed to disempower youth and “dissuade them from questioning the role of corporate power in the climate crisis” (Eaton & Day, 2020, pg.457). Arguably the most notable of these narratives is individualization, which paints the individual consumer as the perpetrator of the climate crisis and thus puts the solution in their hands too. This has been extensively researched and discussed,

especially with respect to BP's carbon footprint campaign that even distributed footprint kits to schoolchildren (Doyle, 2011; Nosek & Westervelt, 2022). Not only do fossil fuel corporations push the crisis into the hands of the consumers, but they also pose as responsible corporate citizens and co-opt the language of racial justice to do so (Tannock, 2020; Nosek & Westervelt, 2022).

Another common strategy employed by the industry involves promoting a "bias-balanced approach" to teachers, convincing them that any discussion of climate change that doesn't also include industry perspectives is biased (Eaton & Day, 2020; Boykoff, 2012). This is a key strategy that grants corporations the ability to influence teaching materials, including lessons about the centrality of fossil fuels to modern life (Eaton & Day, 2020; Huber, 2012). Included in this perspective are the fossil fuel industry's "opinions" about renewable energy, which are essentially misinformation that cast renewables as "intermittent, expensive and difficult to scale up", therefore securing the need for fossil fuels in the near-future (Eaton & Day, 2020). All of this is possible because of the industry's success in building hegemony; in other words, they have gained the ability to circulate their narratives about climate problems and solutions as truth. This ultimately depends on teachers simply enacting the industry's "common-sense" in the classroom.

What is also important to note in this exploration is that youth perspectives on climate change are shaped by so much more than just formal education, including media, lived experience and politics. However, the fossil fuel industry knows this and hybridizes strategies in order to reach more youth (Tannock, 2020; Carroll et al, 2020). Therefore, while our deliverable is intended to address education, we will also keep in mind how these ideas fit in within the larger climate of misinformation. With a basic understanding of this educational context, we can briefly explore how it relates to climate emotions.

Previously an under-explored line of inquiry, researchers have begun to understand and document the variety of emotional responses school-age children have towards climate change education. These emotional responses fall within the larger spectrum of feelings, emotions, affects and moods that are significantly related to the climate crisis (Pihkala, 2022). This spectrum (Pihkala, 2022a) includes both positive emotions such as hope and negative emotions such as sadness, surprise, feeling threatened, sadness, anxiety, depression, guilt and shame, indignation, disgust, anger, envy and hostility. Baker et al. (2020) explains that current environmental education mainly focuses on encouraging pro-environmental behavior while neglecting climate emotions. Jenny Myers (2022) contends that “sustainability educators play an important role in helping our students acknowledge, normalize, and move through their grief, anxiety, fear, anger, and other emotions so that they can be empowered change makers” (Myers, 2022, p. 4).

Many scholars (Myers, 2022; Pihkala 2020; Vandaele and Stalhammar, 2022) advocate for educators to validate both positive and negative climate emotions as natural responses to the climate crisis. However, Baker et al. (2020) found that parents and educators did not know how to teach students about climate emotions and did not have access to age-appropriate resources that explained how. Thus, they would avoid these conversations, despite the fact that students wanted to have them (Baker et al. 2020). Educators also noted that their difficulty in navigating their own climate emotions made it difficult to support students in the same area (Baker et al. 2020).

Pihkala (2020) calls upon educators to reflect upon their own eco-anxiety and be willing to enter the same emotional space as students in discussions, if possible. Vandaele and Stalhammar (2022) found that students did not want to be blindly optimistic or dismiss their

negative emotions entirely. Instead, students wanted to believe in the possibility that climate action can still lead to a positive outcome, while also honouring the anxieties caused by the possibility of a negative one (Vandaele and Stalhammar, 2022). This demonstrates a commitment to what Pihkala (2020) calls “practical anxiety” — a mitigated form of eco anxiety that can actually enhance learning and spur people to action.

Importantly, Pihkala (2020) cautions that immense eco-anxiety can still be paralyzing and hinder learning which is why it’s important to connect students with mental health support both inside and outside the classroom (2022). Overall, researchers argue that the goal for educators should be to foster a sense of agency, efficacy, and hope among students (Sarrasin et al. 2022; Vandaele and Stalhammar 2022). Baker et al. (2021) also urges educators to foster student’s trust in collective action and powerful societal actors.

Constructive hope and action are mutually reinforcing, and hope that fosters action is an essential coping mechanism in the face of other negative climate emotions (Vandaele and Stalhammar 2022). Vandaele and Stalhammar (2022) encourage educators to focus on nurturing, meaning-focused, coping strategies among their students, which involve finding meaning in and maintaining commitment to climate action because it aligns with their values and beliefs. Pihkala (2022b) also insists that a combination of climate action, grieving, and healthy distancing (including self-care) are all necessary in order to prevent paralyzing anxiety, depression, and burnout.

Researchers (Baker et al. 2020; Myers, 2022; Pihkala 2020; Sarrasin et al. 2022; Vandaele and Stalhammar, 2022) recommend a variety of teaching strategies that foster climate hope and validate climate anxiety including engaging with personal narratives about the climate crisis and climate action; naming climate emotions; providing examples of individuals and

communities that model emotional resilience; outlining concrete steps students can undertake to participate in climate action; partnering with local climate action organizations for class projects; discussing a variety of climate solutions; linking theoretical knowledge to practical knowledge; leading reflective group discussions; developing creative arts-based activities; and designing group-based climate action projects.

### **Methods**

To conduct that literature review, we began by reading some of Grace’s published work and other resources she had recommended, which led down some more fruitful pathways of “non-academic” research. For our more “academic” research we did some typical searching on UBC library and other scholarly databases using keywords like “misinformation”, “education”, “climate change”, “fossil fuel industry”, and “narratives”; the keywords that were common in this discursive space. This is where we found many of the key articles that inform this study. After completing our academic literature review, we turned to our local study context to gather the relevant gray literature. Our process involved combing through websites and educational resources that are most frequently used by local teachers, information which was provided to us through an informal interview with another community partner, George. Two of the websites recommended were the BC Teachers Federation (BCTF) Classroom Resources and Learning for a Sustainable Future’s “Resources for Rethinking”, which both house databases of individual resources from different providers. When exploring these websites, we selected individual resources that were more recent, popular and specifically dealt with climate change and energy related ideas. Furthermore, we also did our own web-browsing to find climate change teaching resources that could be recommended to local educators, which might exist independently from



the sources George had provided. Lastly, we included any educational materials produced by the local energy sector, since the academic literature identified strong misinformation coming directly from energy companies themselves.

After sorting through materials and identifying 11 primary resources, we created a table to provide structure for our following content analysis. To undertake this analysis we drew on James Paul Gee's (2010) book "How to do Discourse Analysis", focusing primarily on Unit 3: "Building Things in The World". The fundamental idea behind this unit is that we use words and language to create meaning, which then combine to help people build pictures in their heads. As Gee says, "We want our listeners to build such pictures in their heads because we want to do things in the world and we need other people to think and act in certain ways in order to get them done." (pg. 84). Therefore, it is vital that we investigate the language of these resources to understand what pictures they are building in youth's heads and how this impacts action; who do the pictures really serve? To tackle this investigation, we employ two of Gee's tools from Unit 3. The first is:

**Tool #13: The Context is Reflexive Tool**

When you use the Fill In Tool, the Doing and Not Just Saying Tool, the Frame Problem Tool, and the Why This Way and Not That Way Tool, and all other tools that require that you think about context (and not just what was said), always ask yourself the following questions:

1. How is what the speaker is saying and how he or she is saying it helping to create or shape (possibly even manipulate) what listeners will take as the relevant context?
2. How is what the speaker is saying and how he or she is saying it helping to reproduce contexts like this one (e.g., class sessions in a university), that is, helping them to continue to exist through time and space?
3. Is the speaker reproducing contexts like this one unaware of aspects of the context that if he or she thought about the matter consciously, he or she would not want to reproduce?
4. Is what the speaker is saying and how he or she is saying it just, more or less, replicating (repeating) contexts like this one or, in any respect, transforming or changing them? No act of speaking in a context is ever totally identical in every respect to another (e.g., every lecture is different somehow), but sometimes the differences are small and not very significant and at other times they are larger and more significant.

For this tool, we are focusing on question 2 and largely question 3 because the academic literature highlighted the idea of teachers simply enacting industry “common-sense”; which could be seen as the speaker reproducing the current educational context unaware of aspects like fossil fuel misinformation, that if thought about consciously would change the way the speaker behaves (question 3). We used this tool to discuss the wider conceptual/theoretical framing of each resource, focusing on how language is used to reproduce misinformation to an extent that teachers are unaware. To supplement this tool, we used:

**Tool #14: The Significance Building Tool**

For any communication, ask how words and grammatical devices are being used to build up or lessen significance (importance, relevance) for certain things and not others.

This tool helped us with the aforementioned language analysis, as it allows us to see how the repetition of certain words or phrases give significance to particular ideas within each resource. We applied these tools when working through our content analysis, utilizing them at different points on the spreadsheet to better understand certain themed narratives (discussed further below).

**Content Analysis.** Please refer to the appendix to gain access to our content analysis table. The first three columns are largely descriptive and situate the resource within its relevant organizational contexts, highlighting the name of the resource, which organization it came from and what kind of organization it is. Next is a column that describes the basic structure of the resource, determining how many modules it has, whether it's static or dynamic and which age group it's aimed towards. This kind of basic information is still extremely useful as it helps inform the fundamental design of our toolkit. The following column has a simple explanation that states the focus of each resource, which are highly varied. For example, some had a sole focus like conservation or pipelines, whereas others had numerous due to the modular structure.

The last five columns are much more analytical, and are where we begin to use the discourse analysis tools mentioned in the methods section. The next three directly use the Significance Building Tool to understand which phrases are being used to build up the significance of certain ideas and not others, looking at specific themes based on the academic literature review. The column titled Misinformation/Disinformation is a space to identify if the given resource explicitly discussed misinformation, and to provide extra details if that was linked with the idea of fossil fuel misinformation. The reason it says disinformation too is because it is a typically interchanged word, albeit with a slightly different meaning, that could be included to refer to the same concept that we are exploring. In the next column we explored the theme of

climate justice by looking for phrases like climate justice, social justice and equity that would build up the significance of these ideas within the material. This was important to look at because the academic literature identified a strong science focus within climate education and a lack of social and justice related perspectives. Lastly, we did the same for the theme of responsibility and chose words like individual, collective and corporate to see which ideas around solutions were gaining more significance in the materials. This was also important based on the literature review because other scholars had identified a significant trend towards the promotion of individual action over collective or corporate action littered throughout fossil fuel industry narratives.

The penultimate column aims to imbricate the insights from the last three columns and apply the Context is Reflexive tool, specifically questioning what the underlying narratives are, and if they are an implicit reproduction of misinformation. Finally, the last column is primarily for our own insights, as we compare the resources to some loose criteria set out by the literature as well as our community partners about what makes a good toolkit; allowing us to identify useful toolkit components from any source.

## **Results**

The findings of our content analysis both confirmed our original assumptions and led us to new views surrounding education and climate justice. Since BCTF Classroom Resources and LFS Resources for Rethinking were some of the most prominent, we chose to look at three resources from each database. For each of the other non-profits we have only chosen one, and one from both BCHydro and FortisBC. This weighting is good to keep in mind for the following analysis.

The structure of each resource was highly varied, with the most extensive single resource having 8 modules (Lessons for Transformation) that each last between 1-3 hours, and another resource being a single module, single hour lesson (Think Big!). Furthermore, there were some resources with no modules or recommended teaching time at all, and just provided podcasts or self-paced activities (Youth Climate Toolbox). In terms of layout there was also significant variation, with some resources taking the form of static PDFs and others being websites with lots of dynamic pages and buttons. This was something George actually expressed to us was a huge problem for teachers, and that they tend to prefer static much more than dynamic.

The focus of each resource was also extremely varied, but a few stood out to us for a number of reasons. For more positive reasons, “Teaching Climate Justice in BC: Lessons for Transformation” had a lot of modules, each focusing on an important facet of climate justice. Some of these modules included transportation, food systems, green jobs and imagining the future we want. LFS’ “Empowering Young Learners in a Warming World” is similar to this resource, with a decent climate justice focus evidenced by modules on systems thinking, consumption and Indigenous Ways of Knowing. Other resources were less holistic in their approach but still took a more “social” approach to climate education, like LFS’ “Think Big! Collective Action for Climate Change” that focused explicitly on the power and potential of collective action. Another interesting focus was LFS’ (which hyperlinked to National Geographic) “Making the Decision About an Oil Pipeline in B.C.” which encourages students to ponder the differing sides of the common debate (this is discussed in greater detail later). However, this was actually one of numerous resources that overwhelmingly or solely focus on local impacts, adaptation or just simple individualized issues (Passing Gas, Educator Resources).

Overall, there was no mention of misinformation within any of the materials, other than an exercise in a BCHydro that helps students evaluate the reliability of claims. Using the Significance building tool, we identified that most resources also barely mentioned even the phrase “climate justice” or equivalents. This was aligned with a larger trend where climate change was kept within the realm of science in many resources, without enough recognition of the disproportionate impacts of climate change that the Global South experiences and the wider dynamics of carbon, capitalism, and colonialism. Of course, Teaching Climate Justice in BC: Lessons for Transformation was not a part of this wider trend; their content was actually very free of petro-pedagogy overall. The Youth Climate Toolbox also had great climate justice related content but didn’t explicitly mention it a lot anywhere, since there was a lack of a connecting thread through their whole resource library. LFS appeared to be slightly more climate justice focused than the rest, but upon more careful examination it seemed that their module titles oversold the content. For example, it includes a “How Does Climate Change Affect Our World” module that is focused almost entirely on local environments and Canadian biodiversity without any provocation to think about other countries or people, or about inequity and injustice. Finally, we applied the same tool to the idea of responsibility and analyzed how much each resource promoted individual action and responsibility compared to collective responsibility or corporate responsibility. We found that most tended to discuss or promote individual action and responsibility, especially local, with a lack of language around any aspects of corporate responsibility and the ability of the corporate sector to deter climate justice work. However, where we expect to see it show up in these resources, it does; Lessons for Transformation and of course Think Big! are both focused much more towards collective action, but both still have a sheer lack of focus on corporate responsibility and action.

Using the Context is Reflexive tool, we can take a step back and explore how things are being framed overall and which harmful narratives may be getting reproduced implicitly. Starting with the resources that did well at discussing climate justice and being overall well designed, there was still a lack of narratives about corporate action compared to collective which could be reproducing the current context where youth don't question the role of corporate power in the climate crisis. Even the National Geographic resource about building a pipeline appears to be giving a reasoned and balanced perspective for teachers to moderate the activity with, but that in reality makes the pipeline seem much more desirable than it is in real life by leaving out key pieces of information about the Indigenous land that it's built on. Instead, the resources suggest a balanced perspective to simply discuss the ecosystem and some trees that would be cut down, compared to a fleshed out list of benefits including jobs and products. Overall, there was also a strong science focus on a lot of resources which aligns with the trend that the academic literature had suggested. These are the themes within the B.C curricula we believe are implicitly reproducing the fossil fuel industry's storytelling "regime" and disempowering youth in the process. While there are good resources that exist, they are not available for all age ranges and are limited to the time constraints of certain classes and the parameters of disciplines.

Important to note within this conversation is who funds the creation of the resources, since this could affect the content. Of the 12 analyzed resources, only one was explicitly funded by organizations with ties to fossil fuels. Learning for a Sustainable Future is funded by RBC and TD, two of the largest Canadian banks to fund fossil fuel projects since the Paris Agreement (Banking on Climate Chaos, 2023). LSF does have an "Ethical Funding Statement" which outlines that LSF will not accept funding from coal, oil and gas industries.

## **Conclusion**

Referring back to our main concerns around the addressing “petro-pedagogy”, there is a limitation on discussion of inequities when it comes to discussing climate justice in classrooms. This does provide an accurate, if any, representation of the impacts of climate change. There needs to be a greater emphasis on methods of inquiry and dissemination of those resources into educational institutions while the institutions support the students to develop capacity for the debilitating nihilism and eco-anxiety that is developed from the learning more about climate change. The resources for educators need to be made more accessible and readily available from more reliable sources where climate anxiety is addressed while also developing a deeper understanding of how climate injustices work. In our toolkit, we hope to address some of these concerns where the teacher as well as the student, both, receive support.

## **Next Steps**

This report concludes with an optimistic view on how this project will continue to evolve after CJRC 2022-23 comes to an end. One of our next steps will involve reaching out to the BC Teachers’ Federation. The educator toolkit we have produced has the potential to greatly improve climate justice education in grades 4-7 in British Columbia. Through our discussions with George Radner from Be The Change Earth Alliance, having this toolkit published on the BC Teachers’ Federation “Classroom Resources” page would place the toolkit in classrooms across the province.

In addition to pursuing the possibility of featuring the toolkit on BCTF’s content page, we are hoping to continue our work with Grace as she works to publicize the Rootbound project in



roughly the next 18 months. Through our discussions, Grace has identified expanding the toolkit to feature more grades as a possibility that she would greatly support.

Finally, we're looking forward to speaking as guest lecturers in Dr. Snowden's youth activism course next September, where we will have the opportunity to verbally share our research experiences.

### References

- Baker, C., Clayton, S., & Bragg, E. (2021). Educating for resilience: Parent and teacher perceptions of children's emotional needs in response to climate change. *Environmental Education Research*, 27(5), 687-705. <https://doi.org/10.1080/13504622.2020.1828288>
- Banking on Climate Chaos. (2023). <https://www.bankingonclimatechaos.org/>
- Boykoff, M. T. (Ed.). (2011). Climate stories How journalistic norms shape media content. In *Who Speaks for the Climate?: Making Sense of Media Reporting on Climate Change* (pp. 99–120). Cambridge University Press.  
<https://doi.org/10.1017/CBO9780511978586.006>
- Carroll, W., Graham, N., Lang, M. K., Yunker, Z., & McCartney, K. D. (2018). The Corporate Elite and the Architecture of Climate Change Denial: A Network Analysis of Carbon Capital's Reach into Civil Society. *Canadian Review of Sociology/Revue Canadienne de Sociologie*, 55(3), 425–450. <https://doi.org/10.1111/cars.12211>
- Davidson-Harden, A., and S. Majhanovich. (2004). Privatisation of Education in Canada: A Survey of Trends. *International Review of Education*, 50(3-4): 265–287.  
<https://doi.org/10.1007/s11159-004-2623-5>
- Doyle, J. (2011). *Where has all the oil gone? BP branding and the discursive elimination of climate change risk* (pp. 200–225).
- Eaton, E. M., & Day, N. A. (2020). Petro-pedagogy: Fossil fuel interests and the obstruction of climate justice in public education. *Environmental Education Research*, 26(4), 457–473. <https://doi.org/10.1080/13504622.2019.1650164>
- Gee, J. P., & Green, J. (2011). *How to do discourse analysis*. Oxon: Routledge.

Huber, M. (2012). Refined Politics: Petroleum Products, Neoliberalism, and the Ecology of Entrepreneurial Life. *Journal of American Studies*, 46(2), 295–312.

<https://doi.org/10.1017/S0021875812000126>

Nosek, G & Westervelt, A. (n.d.). *Greenhouse Gaslighting: Fossil Fuel Industry Narratives*.

Good Energy. Retrieved February 28, 2023, from <https://www.goodenergystories.com/>

Noonan, J., and M. Coral. (2015). The Tyranny of Work: Employability and the Neoliberal Assault on Education. *Alternate Routes*, 26, 51–73.

Molnar, A. (2006). The Commercial Transformation of Public Education. *Journal of Education Policy*, 21(5), 621–640. doi:10.1080/02680930600866231.

Myers, J. (2021). Weathering the storm together: Cultivating climate leadership through affective pedagogy and psychological support groups. *Emerald Open Research*, 3, 18.

<https://doi.org/10.35241/emeraldopenres.14336.1>

Pihkala, P. (2020). Eco-Anxiety and Environmental Education. *Sustainability*, 12(23), 10149. doi:10.3390/su122310149

Pihkala, P. (2022a). Towards a Taxonomy of Climate Emotions. *Frontiers in Climate*, 3, 738154, <https://doi.org/10.3389/fclim.2021.738154>

Pihkala, P. (2022b). The Process of Eco-Anxiety and Ecological Grief: A Narrative Review and a New Proposal. *Sustainability*, 14(24), 16628.

<https://doi.org/10.3390/su142416628>

Robertson, H.J. (1998). *No More Teachers, No More Books: The Commercialization of Canada's Schools*. Toronto: McClelland & Stewart.

Sarrasin, O., Henry, J. L. A., Masserey, C., & Graff, F. (2022). The relationships between adolescents' climate anxiety, efficacy beliefs, group dynamics, and pro-environmental

behavioral intentions after a group-based environmental education intervention. *Youth*, 2(3), 422-440. <https://doi.org/10.3390/youth2030031>

Sukarieh, M., & Tannock, S. (2009). Putting school commercialism in context: A global history of Junior Achievement Worldwide. *Journal of Education Policy*, 24(6), 769–786. <https://doi.org/10.1080/02680930903294636>

Tannock, S. (2020). The oil industry in our schools: From Petro Pete to science capital in the age of climate crisis. *Environmental Education Research*, 26(4), 474–490. <https://doi.org/10.1080/13504622.2020.1724891>

Vandaele, M., & Stålhammar, S. (2022). “Hope dies, action begins?” the role of hope for proactive sustainability engagement among university students. *International Journal of Sustainability in Higher Education*, 23(8), 272-289. <https://doi.org/10.1108/IJSHE-11-2021-0463>

Yanez, G. A., Thumlert, K., de Castell, S., & Jenson, J. (2019). Pathways to sustainable futures: A “production pedagogy” model for STEM education. *Futures*, 108, 27–36. <https://doi.org/10.1016/j.futures.2019.02.021>

## Appendix

1.  Content Analysis Table