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Adolescent Perspectives on Climate Change in an Era of Economic Uncertainty: Eschewing Neoliberalism in Nelson, British Columbia

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Introduction

In the summer of 2018, I interviewed 10 senior high school students in Nelson, a small city of 15,000 located in the West Kootenay Mountains of southeastern British Columbia that is known for having progressive politics.¹ Nelson is also known for having a unique history – situated in the heart of the traditional territories of the Sinixt and Ktunaxa peoples, it has experienced waves of radical dissidents from early 20th century Wobblies, to mid-century waves of pacifist Quakers and Doukhobors, followed by several hundreds of American and Canadian adherents to the anti-war counter-culture of the 1960s and 1970s (Rodgers, 2014). There is no question that this distinctive past and demographic influenced the adolescents who participated in this study.

It is significant that the summer of 2018, when the interviews took place, was the second consecutive summer in which this region (as well as most of the BC Interior) was experiencing numerous forest fires, many massive in size (Lindsay, 2018). I wanted to inquire into the thoughts of adolescents around climate change and economic uncertainty.² (This study took place a few months before the advent of the Climate Strike movement spawned by the Swedish activist Greta Thunberg, herself a teenager. It is also noteworthy that this study took place roughly a year and a half prior to the coronavirus outbreak of early 2020.) I was curious to understand how they were making sense of competing discourses around climate change and the economy, especially those pushed by media pundits and right wing politicians who describe the situation as a binary that pits climate concerns against the economy. After all, how humanity deals with both of these issues will have profound effects on the entire adult lives of this adolescent demographic. My curiosity was piqued not only because of the burning forest fires in the BC interior, however, but because of a growing awareness of a set of disconcerting statistics and discourses that were dominating political debates in Canada and across much of the world.

According to NASA, the year this study took place, 2018, was at that time the fourth hottest year on record (CBC, 2020). In 2014, the American Association for the Advancement of Science (AAAS) found that “based on well-established evidence, 97 percent of climate scientists have concluded that human-caused climate change is happening” (Molina et al., 2014, p. 1). Studies by the U.S. National Oceanic and Atmospheric Administration (NOAA) indicate that ocean levels are rising at an average of over 3 cm per decade since 1992 (2016). Climate change is also believed to be responsible for more frequent and larger forest fires, increased desertification, uncertainty over crop yields, shortages of drinkable water, and warmer ocean temperatures resulting in decreased sea life and the breakdown of ocean food chains (Molina et al., 2014). In Canada, we are experiencing more frequent massive forest fires in BC and beyond, including a raging wildfire that burned an area “larger than Prince Edward Island” around Fort McMurray Alberta in the summer of 2016 (Giovannetti, 2016). These statistics were part of a set of alarming facts that led me to wonder what today’s youth were thinking.

Two months after I collected the data for this study in the summer of 2018, the United Nations-sponsored Intergovernmental Panel on Climate Change (IPCC), a group made up of over 60

climate scientists and climate policy experts from around the world, released a report that stated in no uncertain terms that the time limit to reverse the amounts of greenhouse gases entering the Earth's atmosphere is 12 years (IPCC, 2018). The report clearly explained that urgent changes are needed to lessen the risk and frequency of extreme heat, massive forest fires, powerful hurricanes, drought, floods, and dire poverty. Almost a year after the interviews, the U.S. Department of Commerce published a report that was authored by climate scientists at the National Oceanic and Atmospheric Administration stating that July 2019 was hottest month on record for the entire planet (NOAA, 2019). The report also claimed that July 2019 was the 43rd consecutive July and 415th consecutive month with above-average global temperatures. Moreover, NASA recently determined that the decade from 2010 to 2019 was “by far the hottest ever measured” (CBC, 2020). These are extremely frightening trends.

At the same time, many members of the public have been overwhelmed with discourses about a fragile national and global economy. In 2016, the International Monetary Fund (IMF), an American-based financial organization that has unashamedly promoted neoliberalism since the 1970s, released a report called ‘Neoliberalism: Oversold?’ in which the authors conclude that cutbacks in social spending and privatization of the commons has resulted in extreme poverty throughout the world (Ostry, Loungani, & Furceri, 2016). Despite this rather late admission by the IMF, neoliberalism is an extremely powerful economic paradigm that is very difficult to challenge (Brock, 2019). It concentrates the wealth at unprecedented levels among the upper echelons of economic elites (Orlowski, 2014) and without regulation will continue to do so (Piketty, 2014). Many Canadians and Americans undoubtedly lament public debates about the growing wealth inequality in our countries.

In the midst of the release of these reports and countless others about climate change and an uncertain economy, I conducted my study with senior high school students in the BC interior. The research question for this study was: How do high school students in British Columbia intellectually process the ongoing public debates around climate change and an uncertain economy?

This article describes my analysis of the thoughts of the 10 student-participants. My own position is that human-caused climate change is a fact. As a former engineer, I believe the general consensus among climate scientists. The goal of the study was to explore how adolescents in rural BC think about it. Before we get to the study, however, an overview of related studies and other relevant scholarly work is in order. The overview is necessarily longer than most because of the complex interplay between climate science, an apparent fragile global economy, human psychology, and the roles of right wing politicians and corporate media pundits who support the neoliberal agenda.

Literature Review: People and Climate Change

Before discussing the relevant environmental psychology and sociological work done on how people think about climate change, a brief overview of what environmental history can tell us is informative. In *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (2016), Andreas Malm explains that the fossil economy began in 1842 in Manchester England when the first tiny emissions of carbon dioxide (CO₂) were released into the atmosphere that enabled certain capitalists of the day to benefit financially. This same dynamic is in operation today, as can be demonstrated by the massive profits of fossil fuel industries over the past several decades. Further, and even more unethical, Malm poignantly states that the “emissions produced by cars [today] ... will have their greatest impact on generations not yet born: they are so many invisible missiles aimed at the future” (p. 7).

Malm (2016) explains that since the first IPCC report was published in 1990, global CO₂ emissions have continued to rise, even at increased rates. He states a bitter irony, “the more knowledge there is of the consequences, the more fossil fuels are burnt” (p. 3). But why is this happening? This is where the fossil economy comes into play, and Malm makes a strong argument that it is this *fossil economy* that is beyond a doubt “the instigator of climate change” (p. 5). As soon as financial profit was made back in 1842 with the first CO₂ emissions, the fossil economy was established and with a force that quickly enabled it to become entrenched into the British national economy and soon afterward other national economies around the world. Fast forward to the present

where one can see history collapsing into the present at an alarming rate. Through photosynthesis, fossil fuels were created hundreds of millions of years ago. The invention of the car was over a century ago, an event that displaced streetcars, buses, and bicycles as a massive infrastructure of “oil terminals, petroleum refineries, asphalt plants, road networks, gasoline stations” was built up over the decades (p. 7). Malm refers to this as a *carbon lock-in*, and because of its influence on human choices and behaviours, contends that this is a major obstacle to combatting the climate crisis. Humanity is effectively caught in a frightening business-as-usual scenario, according to Malm, in which the fossil economy forges ahead despite the present-day consequences and many looming catastrophes.

Environmental psychology has also illuminated some important findings about cognition that are relevant to this study. Capstick and Pidgeon (2013) describe two types of scepticism: epistemic and response. The former refers to an individual’s doubt of the validity of climate science, while the latter is used to describe pessimism and doubt over the efficacy of national or international responses to fight climate change. One study found that media and political inaction influenced the attitudes of Norwegian adults toward climate change (Ryghaug, Sorensen, and Naess, 2010). A focus group study of Swedish farmers determined that they believed climate change was occurring based on their experience, but the media they relied on influenced their thinking on whether it was natural or anthropogenic (Asplund, 2014).

Norgaard (2011) interviewed educated people in a rural Norwegian community to examine why they did not demand a political response from their government during an unusually warm winter. The findings suggested the lack of response stemmed from what the Norwegian people as a collective were suffering from, namely, a condition similar to what psychologists call *psychic numbing* (Gregory, 2003; Lifton, 1982). Lifton (1982) originally conceptualized psychic numbing as a collective phenomenon in which a culture or a society adapts to potentially stressful situations of extreme proportions by adopting a type of arms-length perspective as though the situation threatened others instead of them.

An earlier ethnographic study by Norgaard (2006) on climate change denial is particularly insightful in understanding the dynamics of how socio-cultural norms interact with individual beliefs and attitudes. Norgaard’s research demonstrates how some people psychologically distance themselves from the realities of climate change when faced with information that does not align with their personal values or identity. Another psychological term based in Piaget’s theory of cognitive development, *cognitive accommodation*, is useful here. This arises after an individual has invested so much emotionally into something like climate change denial that to change their stance, even after experiencing strange and extreme weather patterns, would bring them psychological discomfort and pain. Often, rather than change their stance, strong negative reactions surface, as can be seen with some climate change deniers in Canada and the USA. Collective angry responses in many parts of Canada to the federal government’s carbon tax plan in 2018 and 2019 could be an example of cognitive accommodation. Some studies, however, suggest that personal experiences with climate change effects can lead to increased concern and support for mitigation policies (Lujala, Lein, and Rød, 2015; McDonald, Chai, & Newell, 2015). Of relevance to this study, the widespread forest fires in the BC Interior during the summers of 2017 and 2018 are likely caused by a warmer atmosphere.

Moreover, research has shown that public opinion on climate change takes its cue from political leaders, with public opinion rising or falling depending on how much or how little politicians publicly address it (Mildenberger & Leiserowitz, 2017). In Canada, support for government mitigation policies is also higher in areas where policies have already been instituted (Mildenberger et al., 2016). This could be the case in British Columbia where the provincial NDP government has been in a prolonged fight against new oil pipelines emanating out of the Alberta Oil Sands (Shaw, 2019). As mentioned above, one Norwegian study found that media and political inaction influenced the attitudes of adults in Norway toward climate change (Ryghaug, Sorensen, and Naess, 2010). A survey-based study found that most Norwegians believed that fossil fuel emission are contributing to climate change, but were unwilling to support solutions that related to personal financial sacrifice (Rosentrater, Saelensminde, Ekstrom, Bohm, Bostrom, Hanss, & O’Connor, 2012). Both Norwegian

studies could explain why many people living under Conservative provincial governments in parts of Canada vociferously express their displeasure over attempts to fight the climate crisis.

Thus far there is a limited amount of scholarship examining how young people engage with the climate crisis. One study reviewed the research done with youth in several countries (Corner et al., 2015) and found that concern over the warming atmosphere varied greatly from place to place. Of significance, however, is that there were some clear similarities in diverse locations around trust in various sources of information. Climate scientists are viewed as highly trustworthy, and “teachers and lecturers rank highly in the list of messengers successfully facilitating climate awareness among young people” (Corner et al., 2015, p. 528). A study based in Australia (Dawson, 2015) and another study based in the American Midwest (Shepardson, Niyogi, Choi, & Charusombat, 2009) demonstrated that students have a rudimentary knowledge of the science associated with climate change. Both studies made recommendations for curriculum revision based on their findings of the knowledge gaps. Curriculum revision may be part of the solution to foster an informed citizenry around climate change – a study in Sweden concluded that the more adolescents learn about climate change, the less likely they were to be sceptical (Ojala, 2015). A delicate balance is required, however, because some studies have concluded that negative emotional responses can arise in people who are forced to think about climate change to the point that they prefer to ignore the issue entirely (Kahan et al., 2012; Norgaard, 2006).

None of these studies, however, made connections between solutions to the climate change issue, the economy, or the influence of the media. These studies point to the need for this study. Do senior high school students in BC have a grasp of climate science? Do they believe there is scientific disagreement about climate change? Are these adolescents experiencing psychic numbing? Are they optimistic or pessimistic about the ability of humans to successfully take on the climate crisis? Are they optimistic or pessimistic about their economic futures?

Neoliberal economics – a primer

The government carbon tax “will hit hard-working families the hardest, with higher costs for gasoline, groceries, and home heating.” (Andrew Scheer, cited in Scherer, June 19, 2019)

This quote is from the (now former) leader of the federal Conservative Party of Canada. In fact, Conservative leaders across the country have expressed disdain about the carbon tax, often utilizing a false binary of the environment versus the economy (CBC News, 2017; Smith, 2019). Most Canadians are empathetic to a certain extent to the economic concerns emanating out of Alberta and Saskatchewan in recent years because of the collapse in global oil prices. These fears are based on an economic reality on the prairies, which have increasing unemployment rates. Workers in the oil sector are particularly vulnerable to the narrative that the carbon tax will lead to further economic hardship. Significant numbers of Canadians seem to be unaware that contemporary Conservative and many Liberal politicians in Canada and the USA are committed to fighting on behalf of corporate power, ascribing to an economic paradigm called neoliberalism.

Neoliberalism can be a confusing term for students to comprehend. After all, progressive Americans and Canadians accept the basic tenets of liberalism in terms of individual rights. Neoliberalism, however, only refers to economic issues, not social issues. There are four main tenets to neoliberalism on the domestic front: the deregulation of private industry, tax cuts (primarily for corporations and the wealthy), privatization of the commons, and the weakening of collective bargaining rights for workers (Orlowski, 2015, 2011). It also trumpets the individual over group membership (Harvey, 2005). In short, neoliberalism refers to economic and public policy based on a powerful discursive formation that aims to entrench the corporate agenda throughout society. Recent calls for austerity, attacks on public sector workers, and the threat to workers’ and seniors’ pensions are all part of the neoliberal agenda (Caplan, 2012; Kennedy & Press, 2012). Citizens in Canada and beyond have been inundated with a “permanent campaign of persuasion” in the mainstream media to garner support for economic policies favoured by neoliberals and politicians willing to implement them (Kozolanka, 2007, p. 7). The fossil fuel industries in particular have been major beneficiaries of this support in the political arena and the mainstream media.

The role of mainstream media and the (mis) informed citizen

At the Paris Climate Agreement in November 2015, there was somewhat of a political consensus stating that our atmosphere can accept up to a 2-degree Celsius increase before we reach a point of no return and experience regular meteorological catastrophes. Many scientists, however, believe that the 2-degree limit is arbitrary and therefore problematic. They contend that a 2-degree increase will result in rising ocean levels that will completely cover many low-lying lands (Shaw, 2013), and more severe droughts across the planet (Hare, Roming, Schaeffer, & Schlessner, 2016).

There is a growing acceptance among climate scientists that in order to lessen suffering among living species, the temperature increase must not reach 1.5 degrees Celsius (King, 2016). Scientists believe that more greenhouse gases have already resulted in a 0.8 degrees Celsius increase in average global atmospheric temperature since humans began burning coal during the Industrial Revolution (Klein, 2014). Indeed, a new scientific statement released in September 2016 by seven highly respected climate scientists asserts that keeping the warming trend below 1.5 degrees Celsius “has almost certainly been missed” (Mooney, 2016). These scientists, most of whom have held prominent positions with the UN’s Intergovernmental Panel on Climate Change, are calling for all national governments in the world to cut CO₂ emissions much more substantially than agreed to in the Paris Climate Agreement. To not do so, they contend, will lead to endangering all life on Earth.

One might think that a problem of this magnitude might garner serious debate around what to do in these circumstances. Despite the near consensus among climate scientists, the overwhelming majority of conservatives in the United States still reject the evidence produced by the climate scientists (Dunlap, McCright, & Yarosh, 2016). A major reason for this disconnect is that climate change denial is a dominant perspective in popular media sources. For example, one of the most influential news outlets in the United States is *Fox News*.

Over the past several years, its coverage has referred to climate change as a “superstition, a scam, and a hoax” (Gerken, 2015). Moreover, massive donations from the fossil fuel industry have gone to climate change denying think tanks (Fischer, 2013) that have much greater access to the media than climate scientists or environmental groups (Negin, 2014). Similar tactics control the public discourse in Canadian media outlets (De Souza, 2010, 2008). Moreover, up until the federal election in late 2015, the Conservative government forbade its scientists from speaking to the media about their research on climate change and other environmental issues (Mortillaro, 2015).

What this means is that adolescents today are situated in an uncertain economy as well as a media environment usually inclined to deny climate science. This must present huge challenges for Canadian youth trying to navigate and negotiate their worldviews on matters pertaining to climate change and the economy. The major aim of this study was to investigate their attempts to reconcile and make sense of these complex discourses.

Methodology

Through the help of a few teachers I knew in Nelson, BC, I was able to recruit 10 students who had just finished grade 11 or 12 in one of the two local high schools in the early summer of 2018. I utilized a snowball approach to recruit and more students agreed to participate, resulting in nine students who went to either of the local high schools. A tenth student had just completed her high school program by being home schooled for her entire education. The participants included seven females and three males, and seven of them had just completed grade 11 while the other three had recently completed grade 12. See Table 1 for the demographics.

Over the months of July and August, 2018, I conducted one-on-one semi-structured interviews with each of the 10 participants. Each interview lasted between 60 and 90 minutes and took place in various cafes in Nelson. A transcriber was hired, and by late 2018 the entire set of data was ready to be analyzed.

Table 1: Participant Details.

Student Pseudonym	Gender	Schooling Details
Danielle	Female	Completed grade 11
Gajra	Female	Completed grade 11
Ingrid	Female	Completed grade 11
Irene	Female	Completed grade 12 (Home-schooled)
Leo	Male	Completed grade 11
Lynn	Female	Completed grade 11
Olivia	Female	Completed grade 11
Quinn	Male	Completed grade 11
Reggie	Male	Completed grade 12
Rhiannon	Female	Completed grade 12

Note: All names are pseudonyms.

Discussion: Listening to the adolescents of Nelson, British Columbia

This section includes five subheadings pertaining to the research question. It will be composed of mostly the words of the participants, although sometimes connections to studies mentioned in the literature review will be included. This will be followed by some overall concluding statements that specifically addresses the research question: How do high school students in British Columbia intellectually process the ongoing public debates around climate change and an uncertain economy.

Nelson adolescents' understanding of the causes and effects of climate change

All 10 participants believed that the temperature of the Earth's atmosphere was increasing and the main cause was human activity. It was also clear from the outset of each interview that each adolescent understood that this was occurring because of human activity. The participants answered the question, "What do you think is causing the temperature of the atmosphere to increase?" While three specifically mentioned deforestation as a factor, nine of the 10 stated in one way or another that the burning of fossil fuels was the main reason for hotter temperatures. Here are some responses to the question.

Quinn: It's because of transportation and agriculture for our species, the fuel that's being burned, it's causing excess CO₂. The build-up is immense, and the congestion grows, especially in cities. It is really affecting the world as a whole.

Reggie: It's caused by carbon emissions. The burning of fossil fuels, oil and coal mainly.

Rhiannon: The basic root cause would be human activity. Greenhouse gas emissions, loss of natural habitat, the patterns in how we treat the environment. Factory farming. Raising livestock naturally releases a lot of CO₂.

Although Rhiannon was correct in pointing out that human activity leads to greenhouse gas emissions, the greenhouse gas she identified with factory farming was incorrect – factory farming is a major source of the *second* most prevalent greenhouse gas after CO₂, methane.

There were other minor points of confusion in climate science, as when Leo said, "It's about fossil fuels putting pollution into the Earth's atmosphere, damaging the ozone layer." There is no causal relationship between the burning of fossil fuels and depletion of the ozone layer. It is likely that Leo confused the results of burning too much fossil fuel with climate change instead of a damaged ozone layer in the Earth's stratosphere.

It was also significant that three of the 10 participants referred to "consumerism" as a cause of climate change.

Ingrid: I think people should really stop thinking about *what* they want, and instead think about what it is they really *need* to survive. Consumerism is a cause of climate change.

Danielle: I think that one of the main causes of climate change is overconsumption, the overconsumption of goods, and the need to buy things.

Of course, these two students are correct in making the link between consumerism and climate change, albeit they did not make a direct connection. The solution, according to these students, is to somehow convince individuals to buy less, to drive less, and to buy only what is necessary “to survive”, as Ingrid put it. Individual acts can certainly help in the fight against an overheating atmosphere. They should be seen as additional ways to combat global warming rather than as a substitute for policy reform. To be most effective government is going to have to implement policy at the societal level, and most likely directed toward the major emitters of greenhouse gases such as CO₂ and methane, namely, the mega-corporations. This will be discussed later.

One of the 10 participants often gave responses to the interview questions that were dissimilar from the others. Irene came from a conservative Christian family and was homeschooled for her entire K-12 experience. She lived with her family in a rural setting about 50 kilometers from Nelson. On the question of the causes of climate change, however, she also looked to individual choices as the solution.

Irene: A large portion of it is human activity, maybe even the most. I feel like a lot of the problem is that people are just being lazy. Where they could walk or bike, that sort of thing, that would also be a great way to help with the global health problem. If people got out more and were more active, had more exercise, that could help ... But people don't like to change. People are creatures of habit, so having to completely change their lifestyles is something a lot of them are not willing to do.

For these three participants, individual choice was a factor. An argument could be made that this focus on the individual indicates a neoliberal influence. As mentioned above, although in theory it might be helpful if individuals took the initiative to do what they can, a far more effective way to deal with the climate crisis is to regulate and incentivize greenhouse-gas emitting corporations (Klein, 2014). This strategy challenges the neoliberal doctrine.

All 10 participants were able to name the most prominent effects of climate change occurring across the planet today: frequent extraordinarily large forest fires, melting polar ice caps, rising ocean levels, warming ocean temperatures, massive flooding droughts, more frequent powerful hurricanes, and extreme weather patterns that are in flux. It is also noteworthy that five of the 10 mentioned the threat to other life forms. Here is one such response:

Lynn: Just reading statistics in the news about how the temperature is increasing and how many animals are dying, it's powerful ... These warmer temperatures are killing off lots of animals! For example, the ice caps are melting and polar bears are dying because of this. As well, the human population is increasing and if lots of animals, fish, and plants are dying, then our food sources are also going to disappear. In the future, we will definitely be feeling the effects of that.

Although Lynn made the link between dying life forms to human food source depletion, four of the other adolescents mentioned the threat to animal, plant, and fish populations on their own terms without connecting this to less food for humans. These five participants would likely be in support of the activist group known as Extinction Rebellion (Monbiot, 2020). This group is bringing global attention to the threat of extinction of other life forms that we share the planet with because of the climate crisis.

Overall, this group of adolescents was fairly knowledgeable about the causes of climate change. Although they often focused on different issues, it was also clear that all 10 participants were extremely concerned about climate change. This finding supports the study by Ojala (2015) who found that the more adolescents in Sweden learned about climate change, the less likely they would be climate sceptics. The next section addresses the sources of information from which the participants get their information about climate change.

Sources of facts and opinions on climate change

In this section, I explore the responses to the question, “Where do you get your information about climate change from?” This question often led to lots of probing on my part. The students

mentioned several sources for their information on the changing climate. These included mainstream media, social media, parents, peers, and teachers. Parents were often mentioned first, and most of the parents of the Nelson students were environmentally aware.

Leo: My family. I'd say they're pretty aware of climate change. Maybe not as much as me. But they definitely try to do certain things like putting low-flush toilets in our house, conserving water, taking shorter showers, only doing laundry when it's a full load. Small things like that.

Ingrid: My parents are very aware of [climate change]. We always recycle, we don't drive much – we usually walk or bike because of what cars are doing to the climate. My mother especially is very conscientious.

It speaks to the environmental awareness of the Nelson community that most of the participants came from homes in which environmental concerns were a topic of conversation. There were two participants, however, who did not see eye to eye with their parents.

Quinn: My dad sees the Earth much differently than how I see it or how my mom sees it. I'd say he is much more concerned about the economy. That plays in with his job, of course, which is in the financial industry. But he is still worried about issues the oil industry is causing to the environment.

Irene: Well, in Nelson, everyone is a liberal. But where I live [about 50 km outside of town], it's very redneck, and there are not very many people who care very much. My parents are not redneck people, but they're not as concerned [about climate change] because they're very conservative, and they don't really focus on those kinds of issues ... They are religious conservatives and, you know, they belong to the Conservative Party of Canada and all that.

Quinn's father works in the financial industry, so in that respect it is not surprising that he is concerned about what strategies to take on climate change might do to the economy. Irene, who was home schooled for her entire education, has parents who fit the stereotype of religious conservatives prone to ignoring or possibly even denying climate change (Monbiot, 2007).

Seven of the student participants pointed to the mainstream media, mainly the publicly-owned national Canadian Broadcasting Corporation (CBC), as sources of information on the changing climate and related concerns.

Gajra: We only get our news from CBC. That's all we listen to in our house.

Leo: Every morning my dad is listening to CBC, and so I am usually hearing it, too.

Olivia: We watch CBC and CTV in my house. I know some people watch CNN, but I prefer Canadian ones, because we are not American. As for Fox News, well, Fox is nuts in my mind.

It is interesting that Canada's public broadcaster is the main source of news for many of the families of these participants, and that these adolescents appear to appreciate the CBC as well. It is also noteworthy that there are lots of local commercial radio stations: one is in Nelson itself, and several others are in nearby larger centres such as Kelowna. The CBC would be much more likely to carry stories that discuss climate change as a crisis compared to commercial radio. The reliance on the CBC supports the finding by Asplund (2014) that the biggest influence on Swedish farmers' thinking on whether climate change is natural or anthropogenic is the ideology of the main media source they receive their news from.

Five participants mentioned social media and online news outlets for a source of information. A lot of the articles they read are posted on social media platforms like Facebook. What was particularly striking was the level of scepticism among these students around what they were reading online.

Quinn: The sheer number of people interacting on these sites is outstanding. The number of articles on climate change is huge! The science with climate change is all based on facts and numbers. And I like to see the sources for these numbers. Some don't even have sources, so then it's like, can I even trust what this article is saying? Some sources are made by governments, but even governments are influenced by the

political climate. I remember hearing that the Trump Administration deleted some environmental information off their website. That sort of shows how even they change the information to whatever they want.

Gajra: If some random person says something on Facebook, I wouldn't be like, "Okay, I believe you." And I don't know if the news really puts out accurate information either. I don't always believe them. I mostly tend to believe documentaries and stuff that scientists are saying. Anything on the news I don't believe right away, it's just how I am. But now I wonder if I can even believe the documentaries these days. I've heard from my dad that oil company owners pay some scientists to say things they want to be said. I was pretty shocked to hear that.

Both participants are correct with their assertions: The Trump Administration ordered the Environmental Protection Agency (EPA) to remove the term "climate change" entirely or downplay its effects from its website (Davenport, 2018). Some scientists have accepted money from various corporations to deny human-caused climate change (Morton & Smee, 2019). It is also apparent that these participants have an innate understanding of how power influences the social construction of knowledge.

Most people are aware that the massive growth of social media platforms has led to a plethora of fake news stories in many countries, including Canada. Media literacy scholars are beginning to focus on effective ways to distinguish fact from fake news (Goering & Thomas, 2018; Orłowski, 2018). I was pleasantly surprised to learn that these adolescents are already learning how to detect fake news.

Olivia: I'm really lucky because at my school the library is always open. And we have a librarian that knows a lot about online news sources, so we have a whole online database on our school website, and we can check how accurate the information is from there. It's an awesome program.

Ingrid: I always try to see if the sources are credible. So like for writing school papers, I go onto EasyBib to see if the article is on there. That's a good place to start. And there are other websites to help see if information is accurate or fake news. One of my teachers showed us Snopes.com or something like that. I used it when I had to write a paper on glaciers because some articles said they were shrinking and other ones said they're not.

The students of Nelson were fortunate that they have a school librarian who teaches them how to determine what is fact and what is fake news. Indeed, they are also fortunate to have a school librarian at all – many schools across Canada no longer have full time school librarians because of the underfunding of public education in this era of neoliberalism (Beaudry, 2017).

The majority of participants said that the source of information they trusted the most were their teachers. This corroborates what Corner et al. (2015) found, namely, that adolescents rank teachers very high as a trustworthy source. In fact, nine of them stated that they learned about climate change from teachers mostly at the high school level, and in various subject areas.

Olivia: I learned about climate change in my Biology 11 course, but we've also talked about it in my social studies courses ... in grades 9, 10, and 11. And oh yeah, in Science 9 and 10, we've been talking about climate change as a major problem.

Leo: A big reason for why I know about climate change is because we are taught about it in our school. Science classes mainly, but also in social studies ... I think that every science class I've taken has done at least something on climate change. I mean, the science teachers have gone through college and learned about these things, so I find what they say and the websites they tell us to look at are reliable.

Lynn: I don't think we learn enough about climate change in the curriculum. For example, in Biology 11 we did learn about it, but it's only for about a week and a half. It should be more! But I am also in the debate club, and we've debated things about climate change. What I really like about debate is that it forces you to open your mind and do research on something you didn't know too much about ... We don't debate whether climate change is real or not – everyone knows it's real, where we live no one is going to deny it – but we might debate whether the carbon tax is a good idea.

It is a sophisticated high school debate club that delves into the nuances of strategies to combat climate change such as the implementation of a carbon tax. This is not surprising, however, because the notion of someone who denies climate change in Nelson is rare. These two students stated the majority viewpoint of the participants.

Rhiannon: I don't think I know anyone who denies climate change.

Leo: I don't think I've ever met anyone who denies it is happening, but obviously there are some idiots out there.

It is clear that the adolescents of Nelson are very aware and concerned about the climate crisis and the effects it is having on the planet. The smoky conditions created by forest fires in the BC Interior in recent summers are likely a major factor, as several of the participants referred to them in the interviews. This would corroborate studies that suggest personal experiences with climate change effects can lead to increased concern and support for mitigation policies (Lujala, Lein, and Rød, 2015; McDonald, Chai, & Newell, 2015). Mainstream media sources, especially the CBC, offer information that most of the participants consumed and accepted. Social media sites also offered some valuable information, although several participants were rightfully wary of some of the articles and claims they came across. For the main, parents and the overall environmental consciousness of the community itself corroborated what they were hearing elsewhere. Science and social studies teachers were by far the most commonly mentioned sources of information on climate change and related issues. They were also the most trusted source, which supports findings in previous studies (Corner et al., 2015). School librarians were also respected by many of the participants. In fact, the role of the school appears to be of vital importance in helping adolescents understand what is happening to the Earth's atmosphere. The next section addresses what these participants think about the economic discourses they hear most often about, particularly as they relate to combatting climate change.

Climate change and economic concerns – the political literacy of the participants

For a few years now, mainstream media in Canada (and elsewhere) have altered their focus on the climate science: first they asked whether or not climate change is actually occurring, then it was whether it is anthropogenic, and lately many media reports ask whether humans can do anything about it (Orlowski, 2018). As mentioned in a previous section, neoliberal politicians often pose the situation as a binary, that to deal with climate change will result in a dramatic increase in unemployment rates, and by corollary, there will be many more families struggling to make ends meet. Much of the debate in the media centres around this jobs-versus-environment binary. With corporate media obviously having corporate interests, the bias is most often positioned against the pro-environment position (Orlowski, 2018).

Most of the participants in this study, however, were not buying into the fear-mongering espoused by neoliberal politicians in certain media outlets that the economy was going to crash if governments made it more difficult for fossil fuel companies to continue producing oil and natural gas.

Gajra: I think that the governments need to get rid of their business mindset, and put on an environmental mindset. I mean, maybe this can give a good economy, but for how long? The way things are going, who knows for how long we will be able to even live in the future?

Olivia: The Canadian dollar is not doing all that great right now, but I don't think we need to worsen our planet, the environment, just to improve the economy ... Climate change is such a big issue that we have no choice but to deal with it.

Danielle: I think they're looking at it from a short-term perspective ... because we won't have *any* jobs if the world burns up.

Leo: I think we can figure out how to get by without relying on fossil fuels, but if the economy suffers as a side effect, it's still gonna be a lot better than half the population dying because it's too hot to grow food.

These four students were clear in their position, namely, that no matter what happens to the economy humanity needs to deal with the climate crisis first and foremost. Olivia stated that perhaps

people will lose their jobs as society take on climate change, but even if this occurs, it is a necessary side effect.

Other participants, however, were not buying into the commonly heard doom-and-gloom scenario of a crashing economy pushed by neoliberal politicians and media pundits.

Rhiannon: Will lots of jobs really be lost? My take on that is we create just as many jobs as we lose by switching to clean energy sources. So we wouldn't really be losing jobs at all.

Reggie: I think we should try to wean ourselves off fossil fuels in a way that isn't devastating to the economy, which I don't think can be that difficult. We just need to wean ourselves off of oil and use more renewable resources.

Quinn: I've heard many reputable arguments for how green renewables, like wind and solar power, can turn into industries that can be very very large, likely as large as the oil and gas industry ... We need to move the economy to more of a green renewable kind of way. The economic impact, I believe, won't be large, and it might even be positive ... Look at companies like Tesla making electric cars. We see Ford and Toyota following suit. I see further improvement on cars to use less and less gas until it's just a natural shift into fully electric-powered cars.

The stance of these students also demonstrated a critical reading of the media. Although none of the participants used the term, these three students in particular were espousing an idea encapsulated by progressive politicians like Bernie Sanders, Alexandria Ocasio-Cortez, and Canada's Jagmeet Singh with the Green New Deal. In a nutshell, the Green New Deal is a plan for humanity to completely end the extraction of coal, oil, and gas, and to create a fairer economy with high paying jobs in the alternative energy sectors (Klein, 2019).

For the year leading up to the interviews during the summer of 2018, most Canadians who paid attention to the news were inundated with debates about expanding a pipeline system from the Alberta Tar Sands through BC to a port near Vancouver. The Trans-Mountain Pipeline debate was especially intense at the time of the interviews, with the BC NDP Government unequivocally stating its opposition to its construction, which drew the ire of pipeline supporters, including the pro-pipeline federal Liberal government and the Alberta NDP government. Although I did not ask about the pipeline debate, sometimes the discussion broached that topic. The following opinion summarizes their views on the politics around it.

Lynn: The Paris Agreement had people's hopes up, and the Canadian government signed onto it, and that got people's hopes up as well. But then [Prime Minister] Trudeau decided to sign off on buying this new pipeline ... I was very disappointed with this. But I was happy with the BC government fighting back, not wanting this pipeline.

Lynn and some of the other participants expressed confusion over the federal Liberal government's rhetoric in support of the Paris Agreement but then trying its best to expand Canada's oil pipeline system. The views of these students were in keeping with many Canadians' views over the overall ambiguity of the federal Liberal response to the climate crisis. The consensus among these young people to take on this crisis is not only in line with the position of the BC NDP Government's opposition to the Trans-Mountain pipeline, but also corroborates the findings of Mildenerger and Leiserowitz (2017) who found that public opinion on climate issues takes its cue from political leaders.

Five of the 10 participants were aware of another contemporary political issue involving climate change, namely, the federal government's policy of implementing a carbon tax. All five were supportive of this policy, but understood that it would cause a backlash. The following excerpts encapsulate the general stance.

Quinn: I look at climate change as a political issue. So I believe it's up to our federal, provincial, and municipal governments to really push for what it is the Earth needs. We need to elect politicians who really care about the environment ... [The carbon tax] is one way to combat the political side of climate change, to ensure a future where companies are responsible for what they pump into the atmosphere. It inevitably will

cause an outrage. But if we look at all the impacts of all these companies, it's huge! Forcing them to take responsibility, it could impact their bottom line. But something has to be done.

Leo: Obviously, if you add a carbon tax, the companies that make the oil will suffer, but I say this is a necessary evil.

Once again, it is clear that the Nelson adolescent participants took the side of the environment regarding any aspect of the economy, whether it was about jobs or the profits of the fossil fuel industry. Neoliberal perspectives were not persuasive enough with this group.

Implementing a carbon tax was a role for government that all of the participants saw in a much broader context. For example, when asked what government could do to help deal with the possible economic tensions created by dealing with climate change, six of them responded that the monies collected through carbon taxation should be used to help finance "green initiatives" such as alternative energy industries. Five suggested that the government should subsidize the purchase of electric cars, while four participants said that government needs to build the infrastructure for more public transit in cities. It was interesting to note that nine of the 10 participants were quick to point to a positive role for government in the fight against the climate crisis. (Only the student home-schooled by Christian conservative parents omitted mentioning government as part of the solution.) Here are a few of the ideas the students suggested that government could do to ameliorate the climate situation.

Danielle: My friends in Germany tell me that lots of people have solar panels on the roofs of their houses. We don't have very many in Canada. Maybe our government can help out so that more people heat their homes with solar panels instead of using gas.

Rhiannon: Government and corporations are tied together in a way. The government can regulate what corporations do. There needs to be more rules, and the government can do that.

Olivia: I understand that some people would lose their jobs, and that's very sad, but I think that climate change is such a big issue that we have no choice but to deal with it. If there were strategies that could be deployed to help people who lost jobs, I think it would be great!

All three ideas hold much merit, and it is obvious that these students do not subscribe to the neoliberal discourse that the private sector is more efficient than government for solving societal problems. The first idea suggested subsidizing solar panels; however, that may run into obstacles from the oil and gas industry. When the provincial Liberal government in Ontario attempted to help a German solar company to set up in that province, oil and gas representatives pointed to provisions in international trade deals to successfully stop this (Klein, 2014). Recent research demonstrates that it is not that difficult for a government to regulate greenhouse gas emissions and help alternative energy technologies flourish (Krugman, 2019), but there is a proviso that these trade agreements must not impede the implementation of these policies. The obstacles to combat climate change posed by trade deals are likely little known among the majority of Canadian citizens. It is clear from the preceding discussion, however, that the majority of these adolescent-participants possessed a progressive political consciousness toward climate change, the economy, and the role of government.

Hope versus despair

As mentioned throughout this article, all 10 adolescents believe that the Earth's atmosphere is warming to alarming temperatures and that this increase is because of human activity, especially the burning of fossil fuels. It would be also be accurate to say, however, that none of the students in this study were consumed by despair. All of them expressed some sort of hope that humanity would somehow get through the climate crisis although there would be some obstacles and suffering. Each of them could be placed on a continuum with total pessimism on one end and total optimism at the other. None of them could be described as being completely consumed with existential bleakness and in possession of a defeatist attitude; nor did any participant proffer uninformed Pollyanna optimism.

One of the interview questions specifically asked how confident each participant was about humanity successfully dealing with the climate crisis. Because this question gets to the heart of this

entire study, namely, how do today's adolescents feel about their futures, I include a statement from each participant. This set of statements indicates a sliding scale of pessimism moving toward optimism about the future of humanity and life on Earth when taking into account the warming atmosphere.

Gajra: I'm honestly not that confident because [the atmosphere] is warming up so fast. Every year it's getting worse, and if we keep on going the way we are going now, I feel that soon it'll be too late to deal with it. That's my concern.

Ingrid: It's getting so bad, and it seems there are so many things to control to make things better. Last summer I was working at the Rose Garden on the lake here in Nelson, and the smoke from the forest fires was so bad I could not even see across the lake. And I know it's much worse in other places, all over the world. It is happening too rapidly.

Lynn: Not very confident, to be honest. I do think that we could reduce the effects of climate change from happening, but we need politicians who want to stop climate change, who are totally committed to stopping it.

These three students expressed the least amount of optimism out of the entire group. It would appear that all three are focused on the remaining short amount of time that some climate scientists claim humanity has to rectify the warming atmosphere problem. Their position is what Capstick and Pidgeon (2013) call *response scepticism*, which is a pessimistic view of the national or international response to effectively deal with climate change.

The next subset of participants was sitting on the fence – they were unsure if society could effectively deal with climate change before it becomes a full-blown crisis.

Irene: I consider myself an optimist, so I'd *like* to think we can deal with [climate change]. But I truly do not know if we can.

Reggie: I am hopeful, but not very confident ... The threat climate change poses is maybe too big for some people to grapple with. It's just too overwhelming. But we need more people to believe that we *can* do it so the government will do its best.

Rhiannon: I am on the fence. I think that society *could* do something about climate change, but I do not know if everyone would support it. The problem is habit. Society is set up in such a way that things are the way they are because it is hard to break out of that pattern from a long time ago. People have been using cars for a long time to get to work and other things, so it is very hard for them to just stop driving. The government is in the best place to shift that.

Leo: I think we have a 50 percent chance of solving this problem. The biggest concern I have is we have to find a way for people to only buy electric cars or use public transit. So 50/50, that's what I think.

It is interesting that two of the respondents, Reggie and Rhiannon, believed in the role of government to help combat climate change. This stance in itself is in opposition to the neoliberal position that the private sector is more efficient than government. It is noteworthy that Reggie thought that the climate crisis is too overwhelming for some people. This is what scholars refer to as *psychic numbing*. (Gregory, 2003; Lifton, 1982). Rhiannon's response alluded to what Malm (2016) calls the *carbon lock-in*: because humans have been using fossil fuels for transportation for well over a century, many see it as what must continue, at least on an unconscious level. It is perhaps somewhat hopeful that not one participant in the study was influenced by psychic numbing or a carbon lock-in. Some of them, however, perceived these traits in other people.

The next two participants were more optimistic for the future.

Olivia: I am hopeful that we will be able to deal with [climate change]. It's being brought to light more and more in the media nowadays. It's kind of bad in some ways, but it is also necessary to make more people aware of how serious this problem is.

Danielle: Yes, we can! Like I said before, the government can encourage people to heat their homes with solar panels instead of oil or gas. And carbon tax money can be used for green initiatives, and this will create jobs as well, green jobs. And build more public transit in cities. Get away from gas-powered cars. Build more charging stations for electric cars.

Olivia sees an important role for the mainstream media to play in helping the public understand the gravity of the climate change situation. Danielle is another participant who sees the government as being a major player in helping society effectively manage the looming crisis. Her response indicates a positive perspective on the good that can arise from the carbon tax.

The final participant, Quinn, was the most enthusiastic of the group in terms of believing what people can collectively do to effectively deal with climate change.

Quinn: Once the majority of the world's population understands the severity of [the climate crisis] through education, I believe we can change things for the better. If we manage to educate more and more people, not just in First World countries but around the globe, it will have a positive impact. We need to elect politicians who want to put more and more climate science and things like that into the curriculum. I do believe that we can change things for the better.

Although several participants spoke favourably about the role of teachers in helping students understand the serious situation humanity currently finds itself in, Quinn spoke with more passion about the potential of the curriculum to enhance this process. He also pointed to the importance of electing people to government who understand the climate crisis, who believe in climate science. In fact, Quinn was one of six participants who voiced their opinions, unsolicited I may add, as to how they want people to vote based on their understanding of the environmental platforms of Canada's political parties. All six said it has to be either an NDP or a Green government. Rhiannon added: *Never* vote Conservative.

Conclusions

If we do not change direction, we will get to where we are heading.
Ancient Chinese Proverb

It is important to situate this study temporally. All of the interviews took place in August 2018 in Nelson BC, mere weeks before Swedish teen activist Greta Thunberg began a global youth movement that became known as the 'climate strikes'. The findings from this study go a long way to explain why the climate strikes have swelled in numbers such that over a few days in September 2019, millions of young people participated in well over 100 countries (Taylor, Watts, & Bartlett, 2019), contributing immensely to a collective awareness about the climate crisis (Klein, 2019). To better understand how the thoughts of the 10 adolescent participants foreshadowed the popularity of the climate strikes, the research question is stated again:

How do high school students in British Columbia intellectually process the ongoing public debates around climate change and an uncertain economy?

It is noteworthy that the participants in this study were senior high school students – they were not quite of voting age but were aware of the gravity of climate change and the world that awaits them for their entire adult lives. They were very adept at articulating their thoughts and concerns. All 10 participants were well informed about the most serious negative effects from an overheating atmosphere, and all believed the cause of climate change was anthropogenic. Nine participants stated that the main culprit was the burning of fossil fuels, especially for transportation purposes.

The participants received their information on the climate from a variety of sources. Parents, social media, and mainstream media, especially the CBC, were frequently mentioned. Of the five participants who said they read about climate change on social media, all said they were sceptical about this information. It is also noteworthy that most of the participants said they always tried to verify what they read and heard to distinguish what is fact and what is fake news. A few of them mentioned that they learned how to do this from the school librarians and teachers. An important finding from this study that corroborates previous studies (Corner et al., 2015) is that the most trusted sources of information on climate change for these participants were science and social studies teachers and what they learned in the classroom.

Each participant stated in no uncertain terms that unless action is taken to address climate change, even more negative consequences lie in store for humanity. Half the participants mentioned potential threats to other life forms, as well, and it is interesting that these comments were unsolicited. It is likely that the forest fires that resulted in smoke-filled air in the Nelson area impacted the students' sense of urgency in dealing with climate change.

Neoliberal influence from the constant rhetoric emanating from right wing politicians and the mainstream media could be discerned among a few of the students, but not to a large degree. This was manifested by three of them who suggested that individual acts are required to fight climate change. The majority, however, strongly believed in the role of government, and the necessity to elect governments that are committed to taking on the climate crisis. Suggestions for the government included regulating fossil fuel industries, developing alternative energy industries, and subsidizing environment-friendly materials such as solar panels for homes and electric cars.

There was some worry among a few of the participants about the economy. All of the participants, however, strongly believed that concerns about the climate greatly outweighed concerns about the economy. This is an extremely important point as there are grave consequences for people in this age demographic around the future of both the economy and the environment. Also of significance is that over half of the participants believe that as society weans itself off fossil fuels, there will be huge employment opportunities in the green sector, primarily in alternative energy fields. In short, neoliberal discourses did not resonate very much with these adolescents.

Collectively, these adolescents are uncertain of what kind of future awaits them. It was clear that they were not succumbing to psychological conditions such as psychic numbing, cognitive accommodation, and epistemic scepticism. Response scepticism, however, was evident among a few of the participants – several expressed doubt that society would be able to effectively deal with the climate crisis, mainly because of a lack of political will. Others were unsure, while a few were optimistic that human ingenuity and progressive politics will eventually triumph. Almost all of the students believed in the importance of voting for politicians and political parties that are committed to prioritizing the environment and the climate crisis over concerns about fossil fuel industries. This is where hope resides. In fact, listening to the Nelson adolescents speak about climate change in an era of economic uncertainty gave me a strong sense of optimism for the future.

Notes

¹ In the BC provincial election in May 2017, the social democratic (NDP) candidate won in Nelson's riding. The closest runner up was the candidate from the Green Party. The candidate from the pro-corporate BC Liberal Party finished a distant third.

² This study is in conjunction with another study that was undertaken in 2018 by a graduate student I supervised at the University of Saskatchewan. The 10 participants for this second study were senior high school students in Saskatoon, Saskatchewan. A forthcoming article will compare the analyses of the two studies as the Saskatchewan economy is much more connected to fossil fuel industries.

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About the Author

Dr. Paul Orlowski is an Associate Professor in the Department of Educational Foundations at the University of Saskatchewan. He received his PhD in the sociology of education from the University of British Columbia in 2004. His research is in Teacher Education, Social Studies Education, Indigenous Issues in Education, Media Literacy, Citizenship Education, as well as Neoliberalism's Effects on Education, Democracy, and the Environment. Paul's teaching always focuses on political consciousness, particularly as it pertains to neoliberalism's influence on social, political, and economic relations. He is the author of *Teaching About Hegemony: Race, Class, and Democracy in the 21st Century* (published by Springer in 2011), and the co-author of *Media Literacy for Citizenship: A Canadian Perspective* (published by Canadian Scholars' Press in 2018). Paul acknowledges his (unearned) privilege as a white, able-bodied male, and teaches as an advocate for racial justice and as an ally for other oppressed social groups in Canada.