

Canada, Climate Change and Education: Opportunities for Public and Formal Education

Focus on Manitoba Regional Report

A project of



Lakehead
UNIVERSITY

Learning for a
Sustainable Future
LSF



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Knowledge Mobilization Session Final Report *June 9, 2020* *Manitoba*

About the Partners

Learning for a Sustainable Future (LSF) is a national charity founded in 1991 to promote, through education, the knowledge, skills, values, perspectives and practices essential to a sustainable future.

Lakehead University is a fully comprehensive university with approximately 8,500 students and over 2,000 faculty and staff at two campuses in Orillia and Thunder Bay, Ontario. Lakehead has 10 Faculties, including Education.

National Sciences and Engineering Research Council of Canada (NSERC) aims to make Canada a country of discoverers and innovators for the benefit of all Canadians. The agency supports students in their advanced studies, promotes and supports discovery research, and fosters innovation by encouraging Canadian organizations to participate and invest in postsecondary research projects.

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About the Knowledge Mobilization Session

On Tuesday, June 9, 2020, 45 stakeholders drawn from across Manitoba, representing the education, government, academia, business, and non-profit sectors as well as teachers and youth participated in a virtual Climate Change Education Knowledge Mobilization Session.

The purpose of the session was to: share the national, provincial and Manitoba specific findings from *Canada, Climate Change and Education: Opportunities for Public and Formal Education*, a national survey of over 3,196 Canadians; discuss emerging trends and opportunities for climate change education in Manitoba; and develop strategies to strengthen climate change education in Manitoba.

The session was facilitated by: Pamela Schwartzberg, President and CEO, Learning for a Sustainable Future (LSF); Dr. Ellen Field, Principal Investigator, SSHRC Postdoctoral Fellow, Lakehead University; Samantha Gawron, Manager of Programs, LSF; and Jennifer Stevens, Program Coordinator, LSF. Small group facilitation was also provided by Elaine Rubinoff, Director of Programs, LSF and LSF consultants Dr. Karen Acton and Dr. Michele Martin.

Activities and discussions during the 2-hour facilitated session included the following:

- Welcome, land acknowledgement, and introductions from Pamela Schwartzberg, President and CEO, Learning for a Sustainable Future (LSF)
- Mentimeter poll to identify sectors represented in the session
- A presentation of the national climate change education survey report entitled *Canada, Climate Change and Education: Opportunities for Public and Formal Education* by Pamela Schwartzberg
- A presentation of the *Focus on Manitoba Summary Report* by Dr. Ellen Field, Principal Investigator, SSHRC Postdoctoral Fellow, at Lakehead University
- Question and answer session on the Report findings
- Reflections on the most interesting and most surprising elements of the survey report moderated through Mentimeter
- Using Google Jamboard, small groups by sector (academia/education associations, government, NGOs, teachers/school boards, and youth) identified the current reality (helping and hindering forces) for climate change education in Manitoba
- Using Mentimeter, participants brainstormed what needs to be done by the federal government, provincial government, teachers/school boards, youth, NGOs, academia/education associations, businesses/foundations to advance climate change education in Manitoba
- In breakout rooms by sector (academia/education associations, government, NGOs, teachers/school boards, and youth) stakeholders developed action plans for advancing climate change education in Manitoba
- Action planning debrief, sharing of LSF support, closing comments

This report captures the session and output from participants in the facilitated activities. To access the *Focus on Manitoba Report*, and the Manitoba Knowledge Mobilization Session report please visit this [link](#). To read the Full Report, Executive Summary and the video please visit: www.LSF-LST.ca/en/cc-survey. Pour lire le rapport complet, consulter le Sommaire et visionner la vidéo, visitez le site www.LSF-LST.ca/fr/cc-survey

About Learning for a Sustainable Future

Learning for a Sustainable Future (LSF) is a bilingual Canadian charity founded in 1991 by the National Round Table on the Environment and the Economy. Working with business, governments, school boards, universities, communities, educators, and youth across Canada, LSF acts as a connector, a resource, and a facilitator for change.

LSF's innovative programs and strategic partnerships are helping to reshape education policy and transform learning methods, empowering students to address the increasingly difficult economic, social, and environmental challenges of the 21st century.

LSF's Mission

LSF's mission is to promote, through education - the knowledge, skills, values, perspectives, and practices essential to a sustainable future.

LSF's Strategic Priorities

1. Advancing innovative education policies, standards and good practice
2. Reorienting teaching and learning toward active, responsible citizenship
3. Fostering sustainable communities that link education to informed action
4. Supporting collaborative initiatives, networks, and champions

LSF's Reach

LSF reaches over 225,000 Canadians each year through our programs. For more information on LSF programs please see below or visit: www.LSF-LST.ca

Our climate change programs include:

Resources for Rethinking database - www.R4R.ca

R4R is a free online database where educators can search for high-quality, teacher-reviewed, curriculum-matched lesson plans, videos, children's books, outdoor activities and apps/games on issues related to sustainability & climate change.

Professional Development - www.LSF-LST.ca/institutes

LSF's climate change Institutes provide educators grades 7-12 with climate science content as well as strategies, tools and resources to foster understanding, inspire student engagement, and motivate action as engaged citizens in their communities.

Youth Empowerment - www.OurCanadaProject.ca

Climate Change Youth Leadership Forums and Action Project Funding engage students in local climate change issues, equip them with the skills needed to take action, and empower them to make change in their communities.

Call to Action

What are the opportunities to foster climate change education in Manitoba

This report details the findings from our national, provincial and Manitoba specific survey data as well as the results of the collaborative activities and discussion at the Knowledge Mobilization Session. As a summary of these results, please review the following calls to action.

1. Leadership by Government

Federal

- Make public and formal education a pillar of federal climate policy. Canada as a signatory to the Paris Climate Change Agreement agreed to Article 12 which states “Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps to enhancing actions under this Agreement.”
- Create a public awareness campaign that is science-based targeting Canadians over 45 through TV and under 45 through social media
- Implement a national strategy to make formal climate change education mandatory, promoted through the Council of Ministers of Education Canada, working with the Canadian Teachers' Federation and other national groups representing public education stakeholders
- Translate complex scientific information into useful/simple language for the general public, practitioners, teachers and students to use
- Provide long-term stable funding to Indigenous-led education and NGOs for the development and delivery of climate change education programming

Provincial

- Incorporate climate change education policy into the MB Climate and Green Plan
- Revise curriculum to embed mandatory climate change curriculum across all subjects to address the multiple dimensions of climate change
- Revise current curriculum to ensure it does not contradict climate change
- Support mandatory environment and climate change professional development for teachers
- Engage student voice and leadership in consultation in curriculum review
- Create a public awareness campaign specific for Manitoba
- Support and fund development of education resources that are interactive, hands on , and centered on Indigenous knowledge
- Fund universities to research climate change impacts, particularly with respect to Indigenous ways of knowing, youth perspectives, and diverse socioeconomic perspectives

2. Leadership by School Boards

- School boards should make it clear that climate change education is a priority and is expected to be addressed
- Collaboratively create, with teachers and students, a climate change learning agenda across disciplines
- Ensure that teachers see that climate change is a priority for the board by supporting them with climate change resources, knowledge and skills
- School boards should provide teachers with current information and professional development opportunities
- Prioritize human rights and Indigenous knowledge/perspectives in climate change education/conversations
- Teachers should focus on teaching climate change regularly and repeatedly, including ways to work for systemic change
- Foster partnerships with community and NGO's to network, collaborate, and build community capacity
- Engage parents. They are concerned about the impacts of climate change and think the education system should be doing more to educate young people on climate change

3. Build capacity of Teachers and Teacher Candidates

To address the barriers identified by Manitoba teachers (lack of knowledge, lack of accurate information sources, lack of classroom resources and lack of instructional strategies) governments, school boards, teachers' unions and Faculties of Education should:

- Form partnerships to help establish professional development opportunities, hands on learning opportunities for our students, field trips, resources and infrastructure support (e.g. outdoor classrooms and community gardens)
- Provide teachers and teacher candidates with access to reliable and up-to-date climate information and data and climate change classroom resources
- Make climate change education a priority and a mandatory part of all teacher candidates' courses and practicum placements
- Educators need to be working with government and other stakeholders in forming a working group to look at curriculum and how we can integrate Education for Sustainable Development initiatives throughout all the different grade levels
- Create a mandatory interdisciplinary class on climate change in Faculties of Education and all university departments
- De-privatize our teaching across universities and formal education
- Universities should take the responsibility to lead in multiple ways including divestment, getting their own carbon emissions to zero on a timeline, getting mandatory classes on climate change education across the university and by sharing the knowledge that some people already have with others

4. Empower Youth

- Give youth a place to share their voices, concerns and fears on climate change; engage in climate change advocacy; become educated on how policy making and discussion in

government and schools boards operate; and have opportunities to connect with people to facilitate action

- Increase accessibility of climate change knowledge for youth
- Facilitate youth agency through their ability to take action
- Address eco-anxiety through town halls/discussions/youth support groups (they can't engage if they're stressed)
- Decolonize classrooms

5. Engage Business

- Business leaders should lobby government for sustainable regulations and legislation on climate change
- Communicate about what they are doing, set the bar higher for corporate social responsibility and invest sustainability
- Fund climate change education programs delivered by NGOs and community groups
- Provide co-op/mentorship/internship opportunities for students related to sustainability and climate change
- Work with post secondary education institutions to develop sustainability leadership credentialing programs for students

6. Engage NGOS

- Provide funding to NGOs to share Manitoba specific, relevant and credible climate change information with teachers, students and the general public
- Work with teachers and schools to incorporate climate change as a cross-cutting topic
- Provide opportunities for inspiration and recognition for action through competitions and events

7. Multiple voices and approaches

- Support people, politicians, and organizations that are working on climate change strategies and awareness
- Ensure Indigenous perspectives and voices are included in the dialogue, planning and action
- Facilitate partnerships between government, business, academia, youth and NGOs to undertake research, develop resources, share content, and utilize channels to help get the message out

About The Survey

The purpose of this national survey was to gain an understanding of Canadians' current levels of knowledge and perceptions of climate change and its risks, assess Canadians' views on how the education system should respond to climate change, and provide a snapshot of climate change education practice in Canada. The survey was conducted online through Leger Research Intelligence, who operate one of Canada's largest online survey panels of approximately 400,000 Canadians. In total, 2,191 responses were collected through Leger's survey panel (closed sample - CS) from the general public, parents, students, and educators. In order to reach a significant number (1,000+) of educators, the survey was also distributed via Learning for a Sustainable Future through an Open Sample (OS) which was publicly available. Since the OS data is not subject to the same controls as the Leger panel survey (CS), the OS results for educators are presented separately from the CS results in this study.

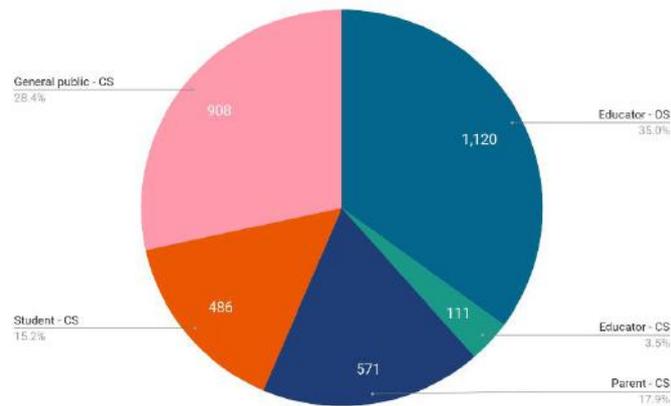
To access the *Focus on Manitoba Report*, and the Manitoba Knowledge Mobilization Session report please visit this [link](#). To read the Full Report, Executive Summary and the video please visit: www.LSF-LST.ca/en/cc-survey.

Total respondents:
3,196

Languages:
English • French

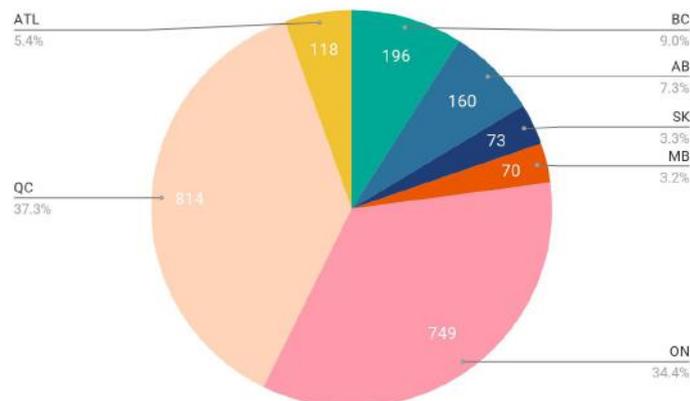
Target Audiences:
General Public in Canada
Parents of K-12 students
Youth in grades 7-12
Educators K-12

Total Respondents - National



n=3196 (Educator OS= 1120 Educator CS= 111, Parent CS=571, Student CS=486, Other CS=908)

Total Respondent - Provincial/Regional



n=2180 (BC=196, AB=160, SK=73, MB= 70, ON=749, QC=814, ATL=118)

National Survey Insights

Survey insights: Perspectives of Canadians*

- The majority of Canadians are certain that climate change is happening, they are concerned, and they believe there are risks to people in Canada.

Survey insights: Knowledge, Understanding and Information

- 43% of Canadians failed the climate change knowledge test
- Canadians are less sure about the causes and human impacts of climate change
- There is a significant gap between Canadians' perception of how well-informed they are and their actual knowledge
- Canadians trust scientists/academics the most
- Canadians get climate change information predominately from television news and documentaries

Survey insights: Impacts and Action

- 36% of Canadians reported that they have personally experienced the effects of climate change
- A majority of Canadians feel that climate change is causing or making droughts, hurricanes, wildfires, coastline erosion, river flooding, and severe winters worse
- Two thirds of Canadians are taking action to reduce climate change
- Only 30% of Canadians agree that new technologies will solve the problem without individuals having to make big change
- The majority of Canadians agree that, while personal actions are important, systemic change is needed to address climate change

Survey insights: Role of Education

- Canadians and educators agree that more should be done to educate young people about climate
- Only 1/3 of closed-sample educators and 59% of open-sample educators reported teaching any climate change
- For teachers who do integrate climate change content, most students experience 1-10 hours of instruction per year or semester
- Only 1/3 of closed-sample educators feel they have the knowledge and skills to teach about climate change
- All teachers should be teaching about climate change

Survey insights: Students

- 46% of students ages 12-18 are categorized as "aware," meaning they understand that human-caused climate change is happening, but they do not believe that human efforts will be effective

***Canadians = average of closed-sample respondents (students, parents, teachers, public)**

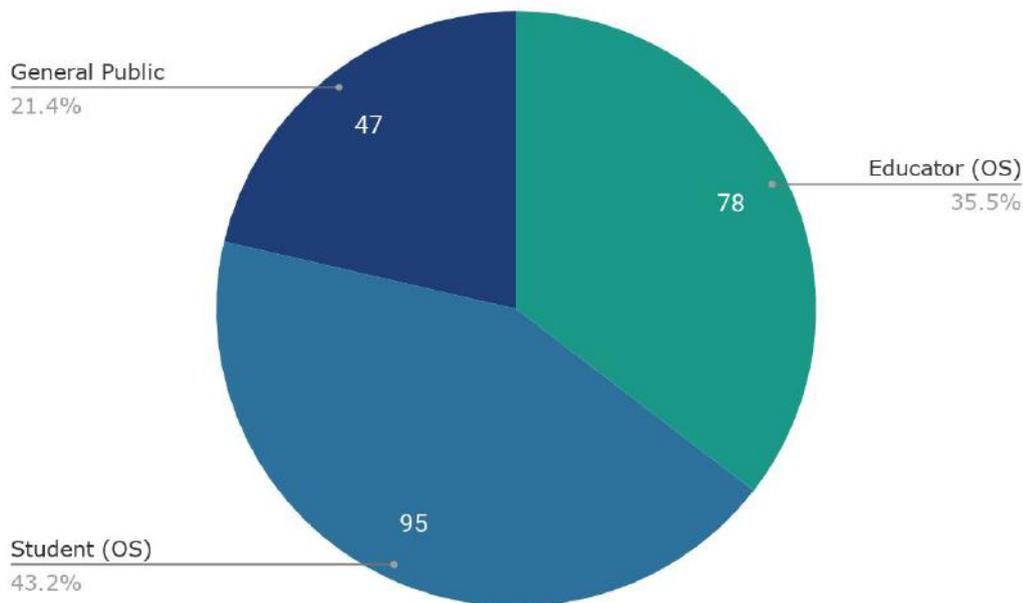
Methodology - Manitoba Region

To generate an overview of the province of Manitoba, data has been visualized of the following:

- Current levels of knowledge
- Perceptions of climate change and its risks
- Assess Manitobans views on how the education system should respond to climate change
- Report on climate change education practice in Manitoba

Due to not having a large enough sample size (>30) to report on from each respondent group in the closed-sample, data is pulled from both OS and CS data sets. The CS data is considered representative of the population and percentages are weighted accordingly. OS data is not considered representative of the population, because of the ability for respondents to opt-in, and is therefore not weighted. Throughout this report, we consistently drew on: Educator OS = 78, Student OS = 95 and General Public CS = 47

Manitoba Respondents



n=220 (Educator OS = 78, Student OS= 95, General public = 47)

Manitoba Insights

Perspectives

I am certain climate change is happening

Across Manitoba, respondents believe that climate change is happening. Although the average responses align with the national average (84% agree that climate change is happening), students' level of agreement in Manitoba (68%) falls far below the national average (80%).

Do you think climate change is...

Responses in Manitoba are fairly similar to the national results with the largest number of educators (75%) believing that climate change is caused by humans, followed by students (56%), and the lowest level of agreement amongst the general public (41%). However, the (incorrect) belief that climate change is caused mostly by natural changes is slightly higher in Manitoba's general public (16%) compared to the national average (9%).

I am concerned about the impacts of climate change

Overall, the majority of respondents in Manitoba expressed concern about climate change. Open-sample educators and the general public's responses in Manitoba very closely align to that of the national average. Students in Manitoba, however, have an 8% lower level of agreement (68%) compared to the 76% nationally.

There are risks to people in Canada from climate change

Respondent groups across the board in Manitoba agree that there are risks to people in Canada from climate change. Responses are similar in Manitoba compared to the national average. All responses indicate a majority of respondents are in agreement with the existence of risks caused by climate change. Students in Manitoba have a slightly lower agreement rate (70%) compared to national results (77%).

Knowledge, Understanding, & Information

Number of Correct knowledge questions

In Manitoba, open-sample educators were the only respondent group with more than 10% of respondents able to answer 8-10 questions correctly (36%). 10% of students and only 7% of the general public were able to correctly answer 8-10 questions correctly. Students and open-sample educators in Manitoba had a similar level of success on the ten knowledge questions when compared to the national average, however only 7% of the general public in Manitoba were able to answer 8-10 questions correctly compared to 16% nationally.

How well informed do you feel about climate change?

The majority of each respondent group reported feeling fairly or very well informed: educator (OS): 83%, students (OS) 58% and the general public: 61%. Interestingly, although respondents from the Manitoba general public were slightly less successful on the climate change general knowledge test, they report feeling slightly more informed than the national average: 61% compared to 54%. Open-sample educators and open-sample students also report feeling more informed than the

respondents nationally as well.

On some issues, people feel they have all the information they need in order to form a firm opinion, while on other issues they would like more information before making up their mind. For climate change, where would you place yourself?

The general public in Manitoba reported overwhelmingly needing more information in order to form a firm opinion (90%), the majority of open-sample educators and students both also reported needing more information, 74% and 70% respectively. A higher percentage of the general public in Manitoba reported wanting more information to form a firm opinion (90%) compared to the average response nationally from the general public (84%). Without being able to compare the student groups across samples, almost 25% of students in Manitoba reported being unsure of their response to the question.

Trust in different sources of information

Overwhelmingly, respondents in Manitoba hold the strongest amount of trust in scientists and academics for information about climate change, 71% report complete trust. NGO's, traditional media, and then the government were the next trusted sources for information with only 22%, 21% and 19% of respondents respectively trusting these sources. Trust in every information source outside of scientists and academics was lower in Manitoba compared to nationally. This is especially true when it comes to friends and family: 15% completely trust compared to 25%, and NGO's: 22% compared to 31%. Manitoba is similar to the national average with a low level of trust in social media as an information source.

Which of the following do you use to inform yourself about climate change?

The top sources for information vary across respondent groups: documentaries are the common ground. Open-sample educators primarily use: documentaries (77%), online news (68%), conversations (64%) and television news (59%). Whereas, open-sample students top four sources were reported as online news, social media (environmental organizations), documentaries and social media news sources. The general public reported primarily using television news, followed by documentaries, then online and radio news.

Impacts & Action

I have personally experienced the effects of climate change

In Manitoba, responses vary significantly about whether or not respondent groups report having personally felt the effects of climate change. 70% of open-sample educators report having felt the effects, just over half (53%) of the general public agreed, and only 27% of open-sample students reported having felt the effects of climate change personally. The results are similarly spread amongst Manitoba respondent groups as they are nationally. The only notable difference is with regards to response from the general public, in Manitoba 16% more of the general public has reported feeling the effects of climate change (53% compared to only 37% nationally).

I have personally taken actions to reduce my greenhouse gas use

The top five actions reported by Manitobans to reduce GHG's were: 1. installed energy efficient lighting, 2. improved insulation in house, 3. installed energy efficient appliances, 4. switch off or unplug appliances when not in use, 5. drove less by walking or biking more. Switching to green electricity and transitioning to a plant-based diet were selected least often by Manitoba respondents.

I believe my actions have an influence on climate change

There is a large discrepancy in Manitoba with regards to whether respondents feel that their actions have an influence on climate change. A large majority (83%) of open-sample educators feel that their actions have an influence on climate change compared to less than half of both the general public (47%) and open-sample students (39%). Students and the general public in Manitoba feel less convinced overall that their personal actions are influential in the fight against climate change. 8% fewer members of the general public in Manitoba responded feeling as though their actions have an influence compared to the national average (47% compared to 55%).

I understand personal actions are important but systematic change is required to address climate change challenges

Responses in Manitoba were highly variable. Educators overwhelmingly agree that systematic change is important to address the challenges of climate change (95.2%). On the other hand, less than half of open-sample students consider systematic change essential to combat climate change challenges (43%). The Manitoba general public falls in between, with the majority agreeing with the importance of systematic change (69%). 10% fewer respondents from the general public in Manitoba agree that systematic change is required to combat climate change (69%) compared to an average of 79% nationally. Open-sample students have a very low level of agreement compared to the closed sample students nationally (31% lower).

New technologies can solve climate change without individuals having to make big changes in their lives.

Responses vary widely across and within respondent groups in Manitoba. A majority of the open-sample educators (63%) and the general public (56%) disagree that new technologies alone will solve climate change without humans having to make any significant changes. Only 27% of students are aligned with this perspective, and the majority neither agree or disagree or are just unsure (53%). A significantly lower percentage of students in Manitoba agree that climate change can be solved by technology alone without humans having to make significant changes in their lives (21%) compared to students nationally (38%). There is a similar discrepancy when looking at responses from the general public. Only 12% of the general public in Manitoba agree with this statement compared to an average of 26% nationally.

Climate Change & The Education System

Do you think the education system (grades 7 - 12) should be doing more, less, or about the same as now to educate young people on climate change?

A large majority of open-sample educators (81%) and the general public in Manitoba (78%) believe that the education system should be doing more to educate young people about climate change. Students agree to a lesser extent, with 55% agreeing that the education system should be doing more. In Manitoba, respondents from the general public feel more strongly that the education system should be doing more, with 15% higher agreement compared to the national average.

Climate change education is a high priority for schooling

Among Manitoba respondent groups, educators (OS) were most in agreement that climate change is a high priority for schooling, with 63% strongly or tending to agree. Just over half of the general public agreed (53%) compared to less than one third of students (29%). Responses from educators in Manitoba are similar to national responses. Manitoba's general public agreed 7% less often than the national average. The most notable difference, however, is among students. In Manitoba, the rate of agreement is almost 20% lower than the national average: 29% compared to 57%.

How many hours over a school year/semester would you typically spend covering topics related to climate change in your classroom

In response to the question about how many hours a semester or year would you focus on climate change, 23% of educators responded not applicable, and 19% responded not at all or unsure. Among educators who covered at least some climate change, 26% spent between 1 and 10 hours, 19% spent between 11 and 20 hours, 3% spent between 21-30 hours, none spent between 31-40 hours but 10% reported spending over 40 hours. Fewer educators in Manitoba (26%) selected between 1-10 compared to nationally (34%). Slightly more educators in Manitoba selected either 11-20 hours as well as more than 40 hours compared to the national average. The data ranges in between (21-30 and 31-40) are very aligned.

Do you cover climate change topics in any of the subjects that you teach? If yes, which subjects?

When asked which subjects (if any) climate change education is incorporated into, Manitoba teachers cited science-related subjects most often, followed by social sciences, language, arts and then math. Nationally, arts is mentioned more often than language and math compared to Manitoba where teachers report being more likely to include climate change education into language and math before arts.

I believe climate change education is the role of all teachers

80% of open-sample educators in Manitoba believe that climate change education is the role of all teachers.

I feel I have the knowledge and skills needed to teach climate change education to my students.

Almost two-thirds of Manitoba educators (62%) feel confident in their knowledge and skills to

teach climate change education. Manitoba open-sample educators feel more competent in their knowledge and skills than both groups of educators nationally. The national level of agreement among open-sample educators (55%) is 7% lower than Manitoba (62%).

What are some of the barriers you have experienced when attempting to include climate change education into your classroom?

In Manitoba, the top four barriers to include climate change education in the classroom were: lack of time, lack of classroom resources, lack of personal knowledge and then structural barriers. These top four barriers are the exact same as the national results. Lack of colleague/principal support is cited more often in Manitoba than nationally. These are followed by being unsure of instructional strategies and lack of parental support.

What support(s) do you need to teach climate change in your subjects?

When asked what supports are necessary to teach climate change education, Manitoba open-sample educators chose climate change resources (including lesson plans, videos and books) most often, followed by national or provincial climate data, information on climate science, professional development, information on the economics and politics of climate change and curriculum policy. Curriculum policy was less important to educators in Manitoba compared to the national results. Least selected was time for planning.

Ladder of Engagement

National

Nationally, Educators (OS and CS) make up the largest group of “empowered” respondents (59% and 46%). Parents represent the largest group of sceptics, with 21% of parents fitting into the category. The largest group of students represent a key audience for intervention defined as “aware,” almost half (46%) of students fit into this audience.

Questions and Answers

Q: (Lena Andres) Would you be able to clarify the difference between OS and CS

A: (Ellen) Closed sample (CS) respondents were from Leger Research Intelligence online survey panel and included 2,191 responses from the general public, parents, students, and educators. The CS sample is weighted according to Statscan demographics: age, gender and location, and it is considered representative data. In order to reach a significant number (1,000+) of educators, the survey was also distributed via Learning for a Sustainable Future, the Canadian Teachers' Federation, and the Council of Ministers of Education through snowball sampling and a link that was publicly available. Since the open sample (OS) data is not subject to the same controls as the Leger panel survey (CS), the OS results for educators are presented separately from the CS results in this study. As you can see the responses from OS and CS educators are quite different.

Q: (Amanda Benson) What age group of students were sampled?

A: (Pam) Students included high school students in grades 7-12. It is the first time that this age group has been sampled nationally, so it is quite unique data.

Q: (Susan Lindsay) Do you know when our MB Science Curriculum was created?

A: (Kara Wickstrom-Street) I just quickly looked at some of the high school curriculum documents to see when they were published- Grade 9 Science was published in 2000, Grade 12 Biology 2011, Grade 12 Global Issues 2017 and Geography 2006 (which has a large Climate Change component

A: (Ellen) I would like to also add that I am conducting a national curriculum analysis of climate change curriculum expectations (in progress for publication), and have looked at curriculum expectations connected to climate change across all the provinces and territories. From memory, Manitoba has a lot of elective courses at the 11 and 12 level that tie to climate change.

Q: (Paul Berger) Do you think the school climate strikes have changed what students would answer if you redid the study today? Should students learn about Greta Thunberg in school?

A: (Ellen) This data was collected from October 2018 to Jan 2019. Greta started her strikes in Sweden in August 2018 so the climate strikes were just beginning in many ways in Canada. If we were to do this survey again (and this is speculative) but I anticipate that we would see heightened responses from the student population and perhaps across all the segments.

Q: (Linda Connor) What connections has LSF made with Faculties of Education?

A: (Pam) LSF has been working with Faculties of Education over the past 25 years. We engage Faculties of Education in professional development and share resources, but a lot more needs to be done to support pre-service educators and Faculties.

(Ellen) I'll just add in that there's a real opportunity for Faculties of Education to be leading in this area and there are a lot of discussions happening.

Q: (Kara Wickstrom-Street) What was the method of sampling students?

A: (Ellen) Students were sampled through random sampling from the Leger Panel; however, they were not contacted directly. Adults within the Leger Panel were asked if there was a young person between the ages of 12-17 in the home.

(Pam) The other thing I would add is that parents had to consent to students completing the survey if they were under 18.

Q: (Coty Zachariah) Were Indigenous students a part of the targeted sample?

(Ellen) At the time of answer in the session, I thought we had included a sociodemographic question for First Nations, Inuit and Metis to self-identify among a set of other set socio demographic questions; however upon review, I was incorrect and we did not include a self-identification question.

Q: (Lena Andres) Were elementary students left out this time in order to take data from that age level at a different time?

A: (Pam) From LSF's perspective we normally focus on climate change starting in grade 7 because we feel that students have the cognitive ability to understand the complexity of climate change. For the younger years we usually deal with the building blocks of climate change with respect to energy, nature, water, etc. So for LSF we were looking specifically at grade 7-12.

Q: (Jubilee Duek Thiessen) Are there stats on NGOs providing resources and education to parents/families?

A: (Pam) Not through this survey, but it would be a good research topic for sure.

Q: (Jubilee Duek Thiessen) Will university students be surveyed?

A: (Ellen) We did not survey university students in this study. Eco-analytics does actively do research on youth (18-24) and I would recommend looking at that data. It does show how many youth sit within that "aware vs. empowered audience". For us we really wanted to focus on formal secondary education and opportunities within the formal secondary education system.

What Stands Out to You About the National Survey Results?

(Comments generated via Mentimeter poll)

- More teaching needs to be done
- Good general awareness of climate change
- That so many teachers agree that teaching about climate change is important, but only about one third do it...
- How little time is spent on climate change education
- Canadians don't know enough. Students need this knowledge!
- That most Canadians get their climate change info from TV
- The students didn't think they could do something to help
- How many people thought they had a good knowledge of climate change, but still did poorly on a test
- I am surprised that students do not believe human efforts will solve climate change!
- There is a desire to teach the content, but a lack of support in place
- How few educators feel prepared to teach about climate change
- That students don't believe they can make a difference
- Human effort is not enough
- How little Canadians know about climate change compared to what they think they know
- Students are concerned action won't make a difference
- I am so surprised that more people don't know climate change is happening
- All teachers should feel it is the responsibility of all teachers to educate about climate change
- I thought it would be higher than 46% students that were aware
- I'm surprised how few people connect human actions to climate change
- There is a knowledge gap that is currently not being addressed in education
- The % of students aware, was not expecting it to be that low
- The fact that both education and systemic societal change are needed if we really want to address this issue and take appropriate action
- Encouraging to see how many people are seeking more information concerning climate change
- How students feel there is no hope in the human efforts to prevent climate change
- Students knowing about climate change but thinking nothing can be done
- Gap between desire to teach content and available resources
- How people think they are more aware/ knowledgeable than they really are
- The fact that people get information from news sources
- How much climate change info people say they get from friends & TV
- The teachers actually teaching climate change are only spending 1-10 hours on the subject
- People think they need to change their individual lifestyles. To me this sounds like the brainwashing by corporations has worked by shaming the public
- More education is needed

- The level of awareness is higher among students than I would have expected given how little time is devoted to climate change instruction. I believe that the level of instruction is larger than reflected by current curricula
- Not sure CO₂ and GHG contribute to climate crisis
- Public pressure not to discuss
- Regional bias - AB and SK knowledge of climate change is lower
- 46% of students are aware of climate change but don't feel human actions make a difference - this is worrying. Need content covering changes needed that are crucial
- Teachers need more information
- Smaller number than I expected has a sense of capacity as it relates to making a difference.

What was most interesting/surprising about the survey results?

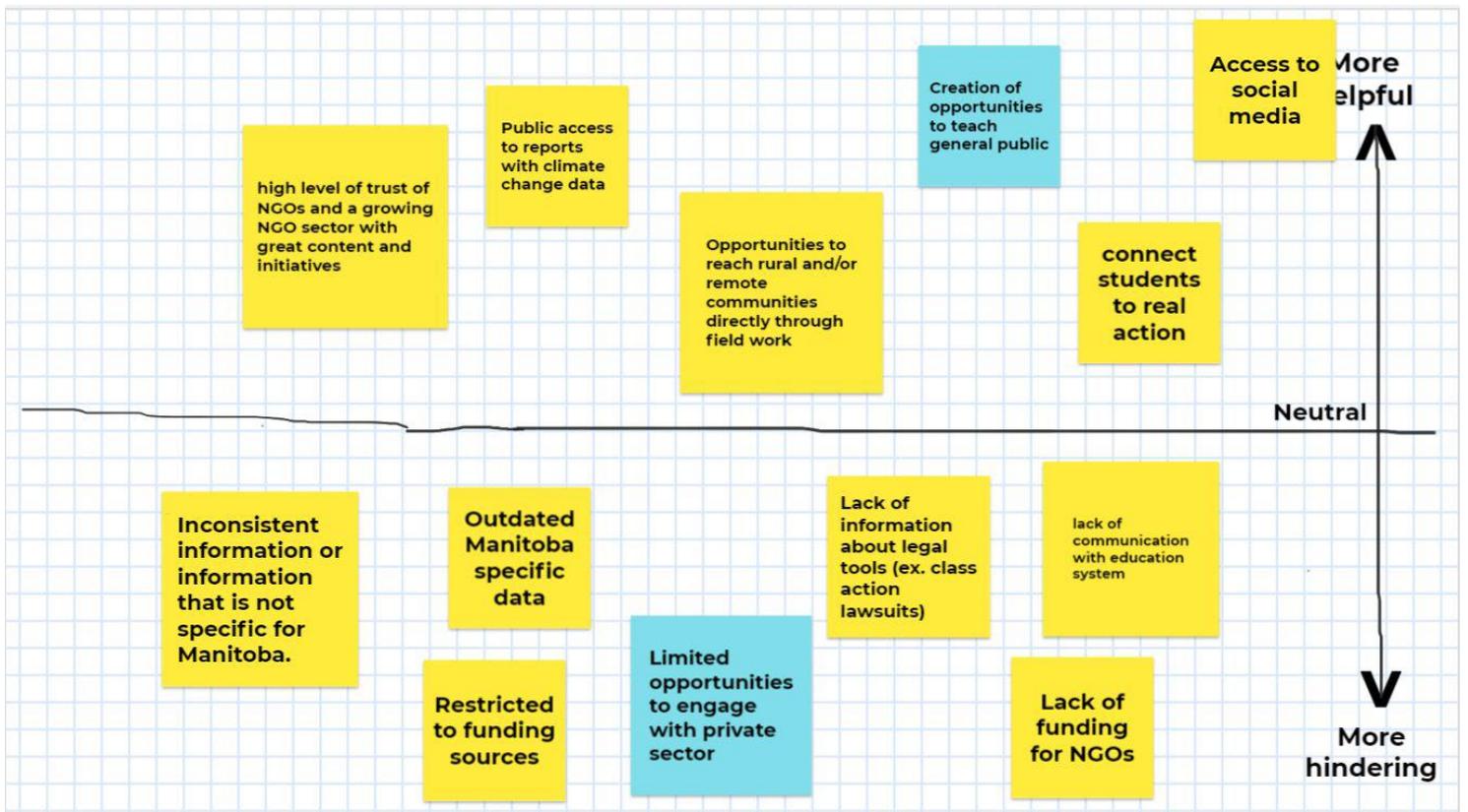
(Comments generated via Mentimeter poll)



Government



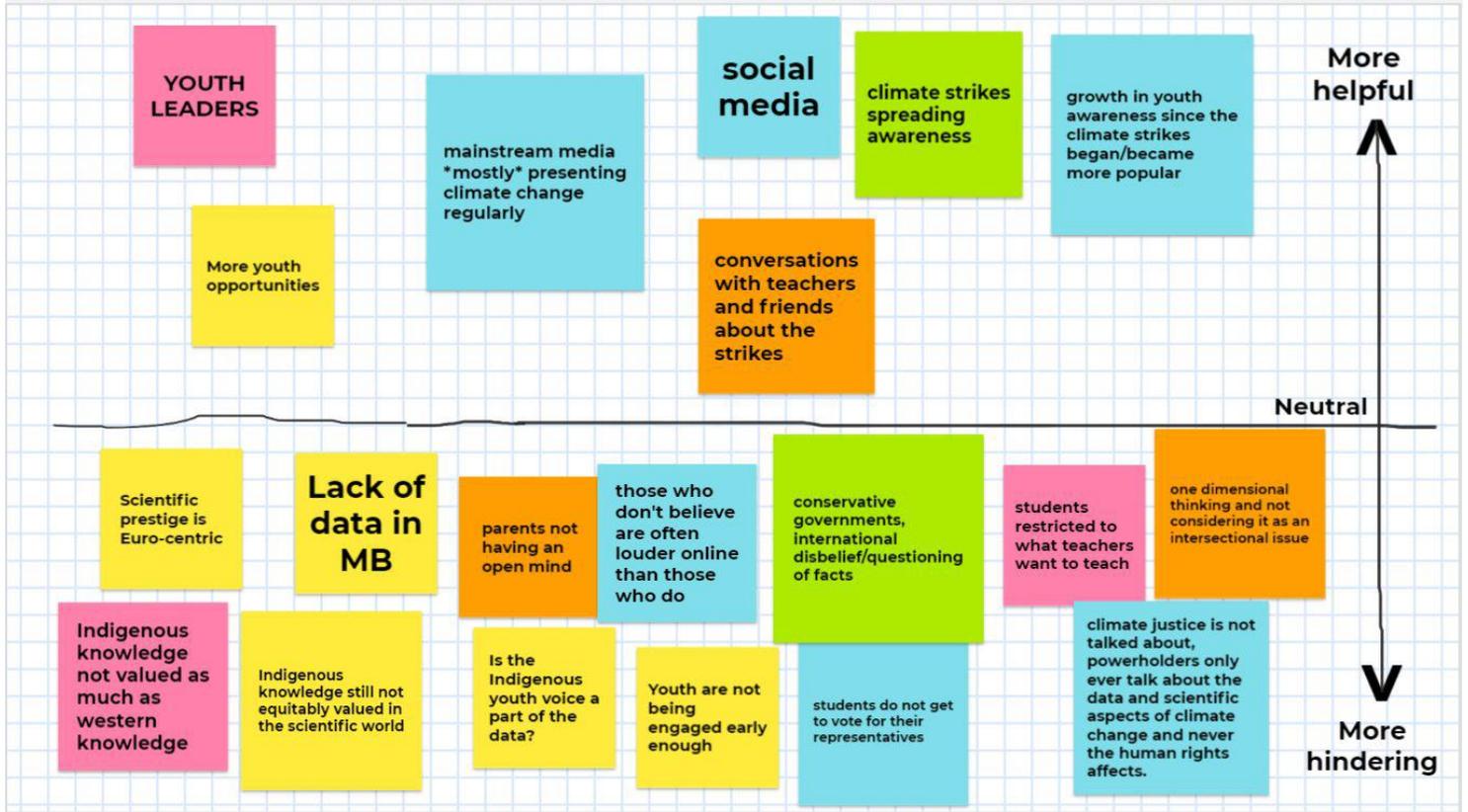
NGOs



Teachers and School Boards



Youth



What needs to be done to advance climate change education?

(Whole-group brainstorm using Mentimeter)

Federal Government

National Strategy

- A national strategy promoted through the Council of Ministers of Education, Canada working with the Canadian Teachers' Federation and other national groups representing public education stakeholders
- National consortium on climate change education
- Implement policy updates
- Create curriculum and legislation that protects education and actions around climate justice
- Make an education policy that provinces need to adopt on climate change
- Recognize environmental human rights
- Live up to the Paris Agreement
- Stop buying pipelines!
- No new extraction projects

More Research & Development

- Support research
- Support the science needed for data
- Make research more easily digestible by the public

Lead by Example

- Be role models
- Teach by action: policies, pipelines, reduce plastics
- Take CGL out of Wet'suwet'en land

Communication

- Promote understanding of climate change
- Increase public awareness through a campaign
- While education is a provincial concern, the Federal government could have a federal awareness campaign
- Be active within communities and connect with community leaders to further a green agenda

Formal Education & Curriculum

- Mandatory climate change education classes in schools and universities
- Require climate change curriculum
- Climate Change 101- create living documents
- Update curriculum on colonization
- Mandatory environment and climate change classes for teachers

Funding

- Specific funding for Indigenous led education
- Provide more funding to NGOs to increase capacity to provide climate change education
- Create grants for development of education programming
- Long-term stable funding to ngos and other programs
- Provide funding for local action
- Fund initiatives

Opportunities for Youth

- Create grants for youth projects and initiatives

Provincial Government

Policy

- Include education in the MB Climate and Green Plan
- Youth panel on climate education
- Mandate climate change education within curricula. Make sure it's not optional!
- Update curriculum documents and incorporate climate change in all subjects
- Require courses in climate change
- Politicians need to better support youth climate action
- Support new curriculum development including hands on learning and climate change content which continues to build on current science
- Audit current curriculum in other areas to ensure it does not contradict climate change
- Stop passing pervasive bills that suppress climate change action and advocacy

Collaboration

- Support grassroots involvement
- Use a curriculum that highlights what local organizations are doing in the face of climate change

Communication

- Work on messaging and public awareness campaign specific for Manitoba
- Speak to adults with authority and begin to change in their own lives to set an example of what a better world could look like

Teacher Training

- Ensure climate change education is taught in faculties of education
- Ensure teachers participate in climate change professional development

Learning Resources

- Publish updated Manitoba specific data
- Support and fund development of local education resources, particularly video, interactive, hands on learning, and centering Indigenous knowledge
- Curate resources
- More outreach so teachers are aware of education material that exists

Funding

- Provide funding to NGOs to increase capacity to provide public education

- Provide funding to support organizations that provide educational programming to develop more climate-related lessons and activities
- Create additional funding for hands-on student experiences

Youth Voice

- Start school-wide initiatives that involve students in a greener lifestyle
- Talk to their parents, relatives and friends
- Stop telling youth their only resource for climate change knowledge is to go "walk around a pond"

Indigenous Knowledge

- Local colonization education taught by Indigenous people, acknowledging climate change
- Respect Indigenous knowledge and decolonize the classroom
- Incorporate land-based learning
- Better funding for universities to research climate change impacts, particularly with respect to Indigenous ways

Educators and School Boards

Policy

- School boards should make it clear that climate change education is a priority and is expected to be addressed
- Advocate for curriculum change
- Mandate more hours dedicated to climate education
- Support teachers in delivering programming

Networks

- Network and collaborate
- Develop a system-wide awareness campaign / strategy for the division
- Connect with NGOs to build community capacity

Professional Development

- School boards should make climate change education a priority and provide PD experiences for teachers
- Provide PD days dedicated to climate change
- Teachers should educate themselves
- Seek out or provide professional development resources
- Get the necessary training to feel comfortable teaching the content
- Teachers need to support teachers!

Teaching Climate Change

- Include climate change regularly and repeatedly, including ways to work for systemic change
- Dedicate at least one day to teach about climate change even if it's unrelated to their course
- Take lessons to next level: encourage and teach action, not just info
- Talk about human rights & climate change
- Promote land-based education

- Jump in - even before the lessons are perfect
- Support teaching of climate change beyond the curriculum
- Be role models and leaders in climate action and climate justice
- Break the social silence on climate change
- Support student engagement in climate action
- Advocate for students
- Care about the mental health of students who are scared
- Celebrate sustainability. Create incentive

Resources & Funds

- Provide up to date resources
- Provide online educational resources
- Partner with NGOs to supply families with educational resources
- Look for credible sources of information and share
- Fund alternative programming
- Use the many resources available
- Provide content that is useful for teachers and inspires students

Infrastructure

- More funding for sustainable infrastructure and ESD initiatives in schools (e.g. gardens, outdoor classrooms, PD)

Business and Foundation

Partnerships

- Connect with NGOs
- Partner with schools

Politics

- Lobby government (especially as business leaders) for sustainable regulations and legislation
- Look for ways to shift the economy to a more sustainable model
- Support people, politicians, and organizations that are working on climate change strategies and awareness

Funding

- Fund climate change education programs
- Fund in a long-term (not short-term grants-based) way
- Fund the NGO sector - this will have an enormous impact on their ability to continue to work into the future
- Fund youth research programs
- Provide grants/funding for ESD initiatives in schools

Sustainable Practices

- "Be leaders"
- Align their bottom line with sustainability
- Businesses should take the biggest step in reducing climate change through climate change mitigation measures and social sustainability
- Incorporate climate mitigation strategies into day to day operations

- Take a look into how they personally contribute to climate change, and find a solution, then share what their problem was and their solution
- Make climate change a priority
- Make sure they are a part of LEED
- Supply sustainable products and policies
- Stop greenwashing and actually invest in sustainable goals
- Provide equitable job opportunities
- Educate their staff
- Share what they are doing for sustainability so students can see real life examples in their community
- Support the youth voice

Spread the Word

- Communicate about what they are doing, set the bar higher for corporate social responsibility, invest sustainability
- Educate on how sustainability is not hindering their business
- Provide information on what they are doing to make change and how we can help
- Reform their actions and educate the public on how they're changing their business to respond to climate change
- Run media campaigns
- Stop greenwashing
- Demonstrate their changes

Careers

- Provide co-op/mentorship/internship opportunities for students (related to sustainability)
- Work with post secondary education institutions to develop sustainability leadership credentialing programs for students. This can be extracurricular (any student regardless of major can achieve) and tailored toward job market needs

Education Associations and Academia

Advocate

- Be leaders
- Lobby government
- Be activists and speak out about research and knowledge
- Demand to put climate change in the curriculum
- Promote climate change as a national issue/crisis
- Tell the truth - you've got tenure!
- Stand your ground. Be proactive

Pre-Service Teacher Education

- Incorporate climate change education into required course work
- Mandatory climate change courses in faculties of education

Research

- Make sure that research and recommended practices reflect the reality of educators and classrooms
- Make research more easily digestible by the public

Knowledge

- Provide leading climate change information in plain language
- Share knowledge
- Prioritize climate change and familiarize themselves with the issues
- Make information accessible beyond expensive institutions
- Continue to update and develop programs that keep our educators up to date so that they can provide that for their students
- Make it clear this is not a controversial issue - the science backs this up

Teaching

- Teach it!
- Present accessible knowledge, not just scientific/policy ridden jargon
- Support teachers developing new methods of education
- Start talking about climate change immediately even if you don't have all the info. You can learn with your students.

Professional Development

- Provide training and resources
- Develop professional development sessions to school divisions on what teachers need to know about climate change and methods for integrating this knowledge into curriculum
- Provide professional development for teachers to equip staff with practical skills and knowledge, address mental health impacts of teaching about climate change

Youth

- Allow for youth voice when speaking about climate change
- Don't speak for the youth, give them the platform to speak from

Collaboration

- Collaborate with local leaders
- Provide funding for innovative developments
- Build connections with NGOs, Indigenous groups, communities

Youth

Speak Up

- Demand climate change learning regularly from teachers, school divisions and government
- Advocate for recognition of environmental rights
- Keep it up :) Make it clear something different is both possible and expected
- Tell leaders they want action
- Keep up the rallies!
- Yell louder!

Get Involved

- Engage
- Join/establish ESD groups in your schools
- Build public awareness
- Join their local strike group and participate in rallies
- Undertake projects in climate change
- Take action

- Participate in opportunities available to them

Leadership

- Actively engage in educating your teachers, community members and other adults on climate action
- Form divestment groups in their schools/universities
- Speak with their peers, be co-educator
- Advocate for climate change action in your school and community

Be Bold!

- Be bold, be brave
- Demand information from teachers
- Keep being engaged and asking teachers for more
- Advocate for the changes they want, hold educators accountable, participate in student-leadership
- Stand up when something isn't right in class

Take Initiative

- Develop their own awareness and share credible information with peers
- Show up. Ask questions
- Educate friends and other youth
- Talk about the issue to parents, friends, teachers - talking about it is climate action
- Look towards forming student climate action groups within schools
- Join groups at the school
- Work with community organizations

Take care

- Take care of their mental health first
- Realize climate change is NOT their fault

NGOs/Community

Education Resources

- Provide PD opportunities, field trips etc.
- Offer climate change programming
- Provide resources
- Create hands on opportunities to learn
- Create resources that people can access with current accurate information
- Provide access to experts for info sessions with students - scheduled webinars - especially important for remote schools
- Provide online educational resources, connect with education systems and teachers, work to inspire hope and joy
- Work with schools to promote and encourage climate change education
- Help design and implement educational resources for teachers
- Provide clear resources on action points for youth and adults
- Create engaging resources for teachers to use
- Provide funding

Awareness

- Work with their members to build awareness and address concerns
- Publish plain language information accessible to all
- Share climate change information on their social media platforms
- Be in traditional media more often presenting their work

Advocate

- Listen to the needs of communities/educators/youth and work to address them
- Keep it up :)
- Tell the public about the urgency
- Build inclusive communities that address all peoples' rights
- Raise the voices of advocates and leaders
- Provide information about engaging in government processes
- Policy advocacy and recommendations. Target and amend them for current and future governments
- Call out the government(s)
- Help create culture of climate change action

Partnerships

- Get into schools
- Share space and information
- Actively seek where they can go to educate more instead of people coming to them
- Work with Indigenous communities
- Connect organizations
- Create collaborations and working groups. When many stand up together, more people listen

Student Voice

- Engage directly with youth
- Offer resources for youth
- Help bring together youth, support their events
- Provide interactive opportunities for young people to get directly involved in their actions

Internal Operations

- Diversity of perspectives and management
- Build a business case
- Work on frontlines not just in urban areas
- Look internally and be honest about whether you are reflecting your communities

Sectoral Action Plans

Government

BRAINSTORM

- Public Awareness campaign/messaging (science based)
- Targeted education for areas that show regional bias of climate change denial
- Increased funding for funding programs that target climate change projects
- Incorporate Climate Change educational perspectives/info/actions into all public programs
- Fund green energy sectors (including incentives for individuals to use them)
- Revamp the curriculum
- Reduce barriers to accessing funding and create long-term stable sources of funding
- Promote green initiatives including climate change within the government itself (green team initiatives/programs) so we can lead by example
- Stop worrying about education and just start actually creating systemic policies/legislation to address climate change
- Provide/develop programming that offers leadership/action opportunities for youth
- Fund and amplify Indigenous led programming

PRIORITY ACTIONS

1. Public Awareness campaign/messaging (science based) - TV over 45, social media for younger kids
2. Long term funding stable funding for NGOs and educators
3. Mandatory environment and climate change courses for teachers across Canada

NGOs

BRAINSTORM

- Create connections and share resources
- Educate Teachers
- Develop programming
- Create public engagement opportunities
- Share credible resources
- Provide opportunities for action
- Create and update programs that they deliver
- Publish plain language information about climate change
- Incorporate climate change across programming
- Provide professional development opportunities
- Link schools (teachers and students) to nature
- Provide hope
- Engage with members and provide different perspectives
- Create capacity building opportunities
- Get the facts out

- Speak out
- Share information about funding opportunities
- Connect with local NGOs (curate resources rather than create)

PRIORITY ACTIONS

1. Sharing MB Specific, relevant, credible climate change information with the general public
2. Work with teachers and schools to incorporate climate change as a cross cutting topic
3. Provide opportunities for Inspiration (BUZZ), and recognition for action through competitions or regular events

Teachers and School Boards

BRAINSTORM

- Providing all learners with opportunities to demonstrate concern and care for the natural environment by co-creating a comprehensive K-12 climate-science-informed Education for Sustainable Development initiative
- Co-creating a comprehensive K-12 climate science-informed Education for Sustainable Development initiative to research, develop and implement real-world sustainable development solutions
- Hands on experiences
- Revise the science curricula including elementary; need to start teaching at an early age
- Partnerships with other stakeholders (example Experimental Lakes Area)
- Create a working group of educators and other stakeholders to look at re-working and updating curriculum documents to ensure climate change is better addressed
- Mandatory curriculum for all levels
- Mandatory climate education course in BEd program
- Climate change PD for all teachers (offered during SAGE/MTS PD Days)
- Establishing partnerships with NGOs and other organizations to establish and provide research and funding for climate change education PD, field trips, infrastructure
- Online video chats with professionals/scientists/academics - guest speakers

PRIORITY ACTIONS

1. Curriculum needs to be updated by the Ministry, and stakeholders need to be invited to add their voices to what is essential and needs to be included. Climate change education should be incorporated into all subjects and strands (*Note: but we can't wait for the government to update the curriculum - we need to start teaching this now!*)
2. Boards need to move ahead and take the initiative to collaboratively create, with teachers and students, a board-wide climate change learning agenda across all disciplines
3. Teacher PD is key! Teachers need to see that climate change is a priority for the Board by supporting them with climate change resources and knowledge and skills. The Board should allocate time during PD days, as teachers need to be given time to go through curriculum and resources
4. Foster partnership with the community, NGOs, and environmental organizations to help educators, provide current information and get students more deeply involved in real-world

issues. (e.g., PD opportunities, infrastructure, community gardens, hands on learning for students, volunteer opportunities, etc.)

Academia and Education

BRAINSTORM

- Site tours - hands-on learning
- Class presentations
- Require climate change education in curriculum
- Integrating climate change/sustainability into curriculums
- Need a mandatory class on climate change in Faculties of Education (and all of university departments): an interdisciplinary class
- Speaker Series
- Make noise in every way possible!
- University students should go and teach a class or a series in K-12
- Need to offer students a space and time to speak about climate change
- Divest from fossil fuels
- Involve students in projects involving sustainability
- Working with faculty to ingrain sustainability in all departments
- Create a resource guide for parents
- Develop alternative credentialing programs, leadership development programs, that provide knowledge and skills preparing students for careers in sustainability fields; develop in partnership with other organizations and associations; use as a tool to get students to include sustainability as part of their university education regardless of major
- Mandate climate change education in all BEd programs
- Look for ways to better support our students
- Researchers being more vocal about their research (activists!)

PRIORITY ACTIONS

1. Need a mandatory interdisciplinary class on climate change in Faculties of Education and all of university departments
2. De-privatize our teaching across universities and formal education
3. Responsibility for universities to lead in multiple ways including divestment, and being leaders in this space

Youth

BRAINSTORM

- Ask teachers about teaching more climate change content
- Continue climate strikes!
- Climate justice town halls
- Engage in mass education of the public through creative actions, not just traditional media
- Curriculum reform
- Meet with school boards to enact climate policies/state of emergency
- Have resources readily available in classrooms

- Make information accessible and easy to learn
- Human rights focus
- Eco-anxiety town halls/discussions/youth support groups
- Equitable value of Indigenous knowledge
- Decolonize classrooms (as much as possible when in an institution)
- Treaty rights focus
- Invite Indigenous groups to talk about their experiences with climate change
- Learning on the land opportunities
- Advocate for lowering of the voting age and proportional representation
- Empowered youth leadership roles
- Don't leave out the elementary students
- Free professional development opportunities
- Engagement with industry experts
- Encourage youth to be involved with any leadership programs in their schools, creating youth leaders

PRIORITY ACTIONS

- Prioritize human rights and Indigenous knowledge/perspectives in climate change education and conversations
- Grow the number and diversity of youth leaders, and youth confidence and voice
- Ensure faculty and teacher support for climate change programs, so it's not just youth keeping it going
- Increase accessibility of climate change knowledge for youth through NGOs reaching out to students/schools
- Address eco-anxiety through spaces to have conversations and peer support (youth can't engage if they're stressed)
- Advocate for curriculum reform to get more classroom education on climate change -youth are leading the climate change conversation! (Greta, Autumn)

Final words...

- Students are feeling powerless - we need to do something about that.
- Youth have had our human rights violated by climate change and the inaction from government at all levels. If you help youth realize that they actually have some power to make change, you will create a group of leaders in your community, as well as really valuable relationships.
- What really engages youth in climate change is relating it to personal conversations about human rights and Indigenous knowledge.
- The report from this study needs to go to the people in power who have the ability to make political changes.
- Many Canadians don't know enough about climate change to take part, as citizens, in discussions about what to do.
- The Federal and Provincial governments should undertake public awareness and campaigns to spark a conversation with the general public.
- The government has a big role to play in terms of being able to provide long-term stable funding to NGOs and educators.
- The Provincial government has a role in revamping the curriculum and making that more useful to educators and students in our province.
- It's a crisis that schools are so unprepared to teach about climate change and are doing so little. This must change.
- Make sure teachers have the time and the resources to connect with different groups to be able to implement these kinds of initiatives.
- Educators need to form partnerships with all of these other stakeholders to help establish professional development opportunities, hands on learning opportunities for our students, field trips, infrastructure (eg outdoor classrooms and community gardens)
- NGOs are limited by funding from the province which makes it really difficult to support school boards or teachers.
- Universities should take the responsibility to lead in multiple ways.
- In the limited research on BEd students, they want more knowledge on teaching climate change across disciplines.

Participants

First Name	Last Name	Title/Position	Employer/Affiliation
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