Knowledge Mobilization Session Final Report

May 26, 2020

Ontario

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.

The Ontario Teachers' Insurance Plan serves the insurance needs of Ontario education members and their families helping to protect people and things they care about with a full range of group and individual insurance products.

Published by:
Learning for a Sustainable Future
343 York Lanes, York University
4700 Keele Street, Toronto, ON M3J 1P3

Prepared by Pamela Schwartzberg, Learning for a Sustainable Future
Edited by Ellen Field, Lakehead University

Learning for a Sustainable Future and Lakehead University would like to thank the Ontario Teachers' Insurance Plan for their support of the *Ontario Knowledge Mobilization Session.*

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About the Knowledge Mobilization Session

On Tuesday, May 26, 2020, 72 stakeholders drawn from across Ontario, representing the education, government, academia, business, and non-profit sectors as well as teachers and high school students participated in a virtual Climate Change Education Knowledge Mobilization Session. The session was originally scheduled for April 24th at York University but was postponed due to COVID-19 closures. It was rescheduled as a Zoom session.

The purpose of the session was to: share the national and Ontario 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 Ontario; and develop strategies to strengthen climate change education in Ontario.

The session was facilitated by: Pamela Schwartzberg, President and CEO, Learning for a Sustainable Future (LSF); Ellen Field, Lead Researcher, Post-Doctoral SSHRC 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), including a welcome to the Lieutenant Governor of Ontario, the Honorable Elizabeth Dowdeswell.
- 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 Ontario Summary Report* by Dr. Ellen Field, Lead Researcher, Post-Doctoral SSHRC 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, businesses/foundations, government, NGOs, teachers/school boards, and youth) identified the current reality (helping and hindering forces) for climate change education in Ontario
- 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 Ontario
- In breakout rooms by sector (academia/education associations, businesses/foundations, government, NGOs, teachers/school boards, and youth) stakeholders developed action plans for advancing climate change education in Ontario
- Action planning debrief, sharing of LSF support, closing comments

This report captures session and output from participants in the facilitated activities that occurred during the session.

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

To access the *Focus on Ontario Report*, and the Ontario Knowledge Mobilization Session report please visit this link.

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 Ontario

This report details the findings from our National and Ontario 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 signed the Paris Agreement. Article 12 addresses climate change education, training and public awareness.
- Engage with the provincial and territorial governments to make climate change education mandatory
- Help translate complex scientific information into useful/simple language for the general public, practitioners, teachers and students to use
- Give clear directions to federal agencies (like SSHRC or NSERC) that climate change education should be funded and prioritized
- Nationally fund climate change education programs similar to federal coding initiative

Ontario

- Establish a climate change education policy and embed core curriculum across all subjects to address the multiple dimensions of climate change through science, social studies, math, art, language, etc.
- Strengthen the connections between and within governments so that ministries of education have access to the experts in other departments/ministries who are addressing climate change on a regular basis
- Mandate climate change policies in Board and School Improvement Plans
- Engage student voice and leadership
- Support changes to infrastructure so that the physical space students learn in reflects climate change education
- Partner with foundations and NGOs that have a great impact, influence, reach

2. Leadership by School Boards

- Incorporate climate change and sustainability policies into multi-year and operational plans, identify metrics and then measure them
- Build, fund and support a networks of champions to create climate change leadership/expertise in every school
- Provide educational tools and resources around climate change
- Build capacity with educators through training, workshops or developing guidance
- 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 Ontario 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:

- support teachers with Professional Learning opportunities to enhance knowledge, tools, strategies and confidence in engaging students in climate change learning
- Provide teachers and teacher candidates with access to excellent climate information and data and climate change classroom resources
- Develop national policies for Council of Ministers of Education Canada and the Association of Canadian Deans of Education to guide climate change education
- Make climate change education a priority and a mandatory part of all teacher candidates' courses and practicum placements
- Ontario College of Teachers should require climate change education to be part of accreditation for teacher education programs

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.
- Involve youth in climate change policy and implementation at the school, board and ministry levels
- Support developments in a new green economy so that youth see their role in the future
- Facilitate youth agency through their ability to take action

5. Engage Business

- Business must step up to show climate change is important to all and lobby governments to take action on climate change
- Business should require new hires to be climate literate, educate their employees and customers, and drive action around their areas of influence
- Business should encourage relationships between forward thinking industry partners and schools in terms of collaborative and supported community-based improvement plans

6. Multiple voices and approaches

- Ensure Indigenous perspectives and voices are included in the dialogue, planning and action
- Climate change affects everyone differently. People of different socioeconomic backgrounds experience the effects of climate change differently. Having a one-size-fits-all approach will not work
- 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

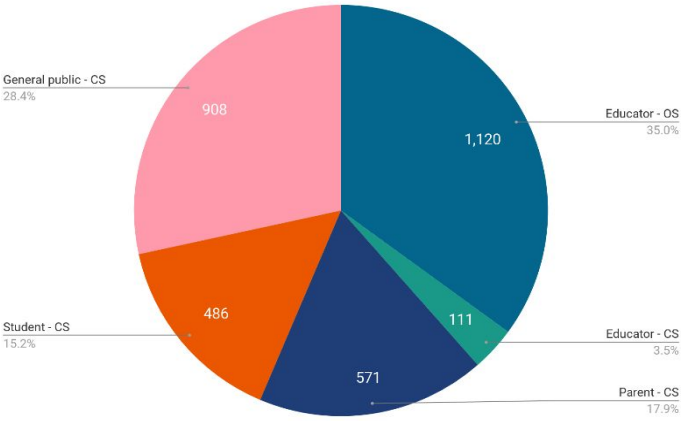
The purpose of this national survey was to gain an understanding of Canadians' current levels of knowledge and perceptions of climate change and its risks, assess Canadians' views on how the education system should respond to climate change, and provide a snapshot of climate change education practice in Canada.

Total respondents:
3,196

Languages:
English • French

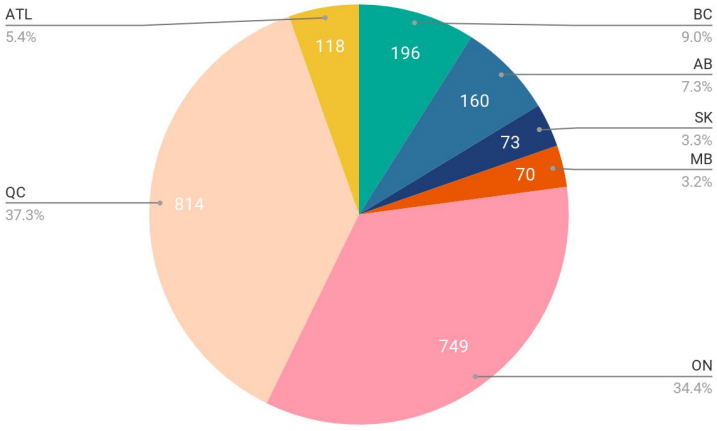
Target Audiences:
General Public in Canada
Parents of K-12 students
Youth in grades 7-12
Educators K-12

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 ⅓ 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 ⅓ 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 - Ontario Region

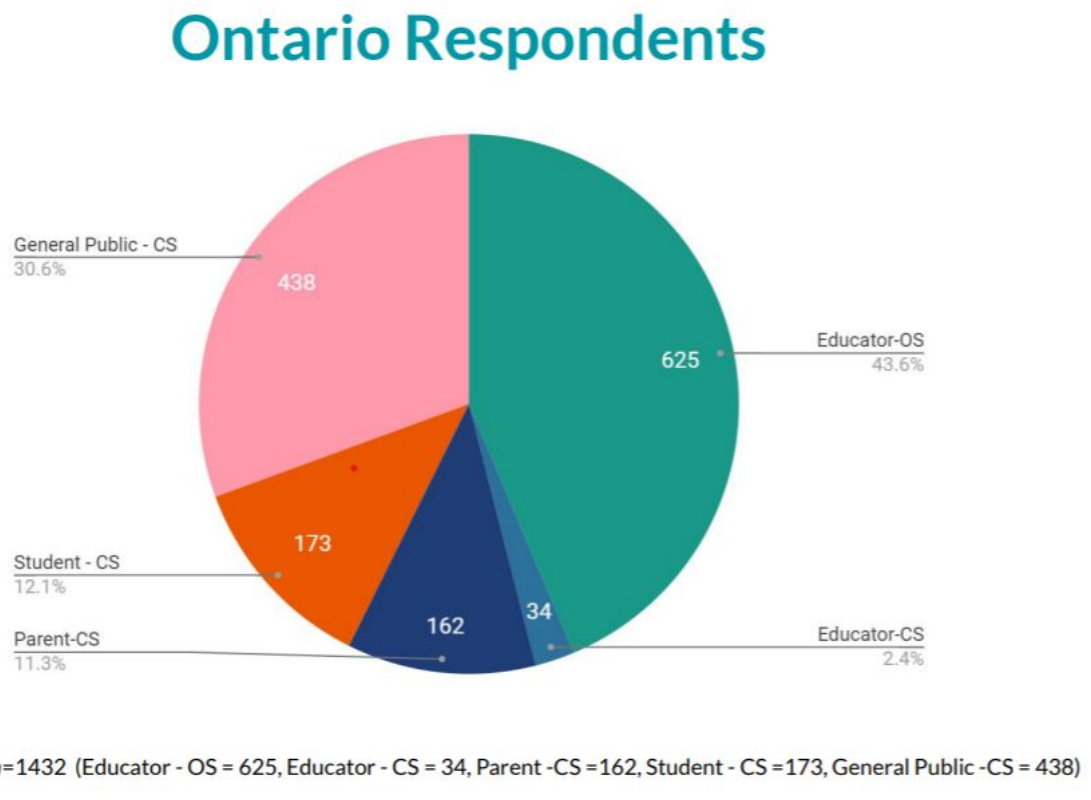
To generate an overview of the Ontario Region, data from both open-sample (OS) respondent groups and closed-sample (CS) respondent groups were included to provide a snapshot of Ontario perspectives:

- Current levels of knowledge
- Perceptions of climate change and its risks
- Ontarians' views on how the education system should respond to climate change
- Climate change education practice in Ontario

Responses from Ontario formed the largest provincial group. The OS and CS data together paints a representative picture of the Ontario population. The visualizations and data that you will see throughout consistently drew on:

- Educator OS = 625
- Parent CS = 162
- Educator CS = 34
- Student CS = 173
- General Public CS = 438

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 it is therefore not weighted.



n=1432 (Educator - OS = 625, Educator - CS = 34, Parent -CS =162, Student - CS =173, General Public -CS = 438)

Ontario Insights

Perspectives

I am certain climate change is happening

Across Ontario, respondents believe that climate change is happening. The trend of responses mirrors the national results with students reporting the lowest level of certainty at 78%, and educators reporting the highest level of certainty (98% OS and 96% CS). Overall certainty in each respondent group in Ontario is slightly higher than the national results.

Do you think climate change is…

In Ontario there is variation in the belief that climate change is human caused. Educators have the largest percentage of respondents that believe climate change is caused mostly by human activities (81% open-sample and 65% closed-sample). Just above half of the student respondents are in agreement that it is mostly human caused (54%), with slightly less than half among parents (48%) and the general public (45%). Results are quite similar to the national averages reported.

I am concerned about the impacts of climate change

Every respondent group in Ontario expressed a moderately high level of concern about the impacts of climate change. Open-sample educators reported the highest level of concern (97%), followed by closed-sample educators (82%), parents (80%), the general public (80%) and students reported being the least concerned (76%).

There are risks to people in Canada from climate change

Ontario respondents consistently agree that climate change poses a risk to Canadians. Educators demonstrated the highest awareness with 96% of open-sample educators and 95% of closed-sample educators strongly or tending to agree that there are risks. Remaining respondent groups generally agreed as well; 82% of the general public, 79% of students and a slightly lower level of agreement was reported by parents (73%). Results in Ontario remain consistent with National Results.

Knowledge, Understanding, & Information

Number of Correct knowledge questions

The Ontario responses follow a similar pattern to the national results with open-sample educators having the highest percentage of respondents answering 8-10 questions correctly (39%). The next highest percentage of respondents able to correctly answer at least 8 questions correctly was the general public at 15%, followed by 12% of students, 11% of parents, and the least successful respondent group in Ontario was closed-sample educators with only 4%. Percentages of respondents who were only able to answer between 0-4 responses correctly were slightly higher across the board in Ontario compared to the national results.

How well informed do you feel about climate change?

75% of open-sample educators reported feeling the most informed. Slightly more than half of the general public and closed-sample educators report feeling well informed (58% and 57%, respectively). Just over half of students (51%) answered accordingly, and just less than half of parents reported feeling well-informed (47%). Ontario results followed a similar pattern as the national average, with parents reporting feeling the least informed, and open-sample educators reporting feeling the most informed. The main differences include: parents who report feeling well-informed is slightly higher in Ontario (47%) compared to the national results (42%). As well, closed-sample educators in Ontario report feeling slightly less informed (57% compared to 63% nationally).

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?

Consistently across respondent groups Ontarians report needing more information to form an opinion on climate change. 91% of parents, 88% of students, 83% of the general public and 82% of closed-sample educators report needing more information. Open-sample educators have a slightly lower percentage of respondents who indicated needing more information, but still a majority (71%).

Trust in different sources of information

Trust in information sources in Ontario follows a very similar pattern to the national results: the most trusted source of Climate Change information, by a large margin, is scientists and academics, and the least trusted source is social media.

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

The top four sources that respondents in Ontario use to inform themselves about climate change are documentaries, conversations with others, online news and television news. Both groups of educators selected documentaries most often, whereas the general public and parents selected television news most often. Similar to the national results, academic journals were not chosen often as sources of information, despite it being the most trusted source by far. Interestingly, the top source of information used by students in Ontario is conversations.

Impacts & Action

I have personally experienced the effects of climate change

Open-sample educators reported having felt the effects of climate change more often than any other group by a margin of 20%, (70% of respondents who reported feeling the effects). 50% of closed-sample educators agreed and only 39% of parents, 38% of the general public and 36% of students agreed. Results are similar to the national results with the exception of parents in Ontario who reported feeling the effects more often than the national average: 39% compared to 28% nationally.

I have personally taken actions to reduce my greenhouse gas use

The top five actions reported by Ontarians to reduce GHGs were: installed energy efficient appliances, installed energy efficient lighting, drove less by walking or biking more, improved insulation in house, and recycled. Switching & unplugging appliances falls further down the list on the most selected actions in Ontario, and recycling does not appear in the top selections nationally whereas it is the fifth most selected in Ontario. The entire list of top selections however is consistent between the Ontario and national results, with many overlapping actions.

I believe my actions have an influence on climate change

In Ontario, respondent groups varied in their belief that their actions do influence climate change. The highest percentage of open-sample educators agreed that their actions have an influence (86%), and members of the general public agreed least often (56%). Among the remaining respondent groups, 69% of closed-sample educators, 64% of students and only 58% of parents agreed that their actions have an influence.

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

In Ontario, nearly all educators felt that systematic change is required to address climate change challenges (open-sample = 94% and closed-sample = 93%). The group of respondents that seemed to place the least importance on systematic change is students with 69% agreeing. The majority of parents (78%) and members of the general public (81%) also agreed that systematic change is required to address these challenges.

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

In Ontario, 40% of students believe that technology can solve climate change without individuals having to make big changes in their lives. Students are the only respondent group in which a higher percentage of students agree vs. disagree with this statement. The next highest agreement was with the general public who agreed 30% of the time, followed by closed-sample educators (25%) then parents (23%). Open-sample educators had the lowest reported agreement with this statement, with only 18% of open-sample educators agreeing.

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?

Both closed-sample (84%) and open-sample (83%) educators believe that the education system should be doing more to educate young people on climate change. Approximately two-thirds of students (62%) and the general public (65%) agree that school should be doing more to educate young people on the issue. Followed by 58% of parents in agreement that the education system should be doing more. Open-sample educator results in Ontario are similar to national data. Whereas, 9% more closed-sample educators in Ontario (84%) reported feeling like the education

system should be doing more compared to 76% nationally.

Climate change education is a high priority for schooling

Climate change is a high priority for schooling according to 77% of closed-sample educators and over two-thirds (65%) of open-sample educators. Just over half of both parents (51%) and students (55%) agree that it is a high priority, and 58% of the general public. In Ontario, a higher percentage of students disagreed (23%) compared to the national results (18%). Closed-sample educators felt more strongly that this was a high priority in Ontario (77%) vs. the national average (70%), but responses among open-sample educators were very similar.

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

33% of closed-sample and 60% of open-sample educators in Ontario reported spending some time teaching about climate change. 35% of open-sample educators reported teaching between 1-10 hours on climate change education, compared to 19% of closed sample educators. Almost half of closed-sample educators (49%) reported that climate change was not applicable to the grade or subject that they teach compared to only 16% of open-sample educators.

The percentage of closed-sample educators who reported climate change as not being applicable to their grade or subject level is much higher in Ontario: 49% compared to 38% nationally. Whereas the number of educators who reported not covering climate change among CS educators is 18% in Ontario compared to 26% nationally. Teachers in Ontario who report teaching between 1-10 hours is 19% compared to 25% nationally.

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

Ontario results align with the national report results, with science-related courses being the subjects that teachers most often incorporate climate change education, followed by social sciences. Farther behind were arts then languages, followed by math, technology, physical education and finally business. More math teachers in Ontario incorporate climate change education into their teaching compared to the national average.

I believe climate change education is the role of all teachers

The majority of both open and closed-sample educators believe that climate change is the role of all teachers (83% and 70% respectively).

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

Similar to the national report, in Ontario over half of open-sample educators reported feeling adequately prepared to teach climate change (53%). Only 20% of closed-sample educators in Ontario agree that they feel prepared to teach climate change, 12% lower than the closed-sample

educators nationally (32%). The percent of closed sample educators in Ontario who respond “not applicable” to this question is significantly higher (32%) compared to national results (18%).

What are some of the barriers you have experienced when attempting to include climate change education into your classroom?
Similar to the national results, the top three barriers for both open and closed sample educators were: “lack of classroom resources,” “lack of time to include during class” and “lack of personal knowledge.”

What support(s) do you need to teach climate change in your subjects?
When presented with a list of supports, responses from open-sample and closed-sample educators differed slightly. Open-sample educators’ top three supports were: “climate change resources,” “professional development” and “information on climate science” whereas closed-sample educators identified “curriculum policy” more often than “information on climate science” or “professional development.” More teachers in Ontario cited a desire for stronger curriculum policy in order to enable them to teach climate change in their classroom compared to the national average.

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: (Jodie Williams/Dennis Price) **Was there any consultation with Indigenous communities? Can the results be disaggregated for First Nations, Inuit and Metis?**
A: (Ellen) There was not enough information to disaggregate the data.

Q: (Carolyn Allan) **Was there additional exploration into why people don't feel that human changes will make a significant difference? For example, did the research learn about the perceived or existing barriers?**
A: (Ellen) No and that is really where the research needs to go. So this is the first stage of a multi-stage project - I've just put in a research grant on personal and professional beliefs that teachers hold. It was really the heavy lifting just to get this national snapshot. Some of the data has been done in other polls but in terms of the teacher perceptions in the classroom that is unprecedented data.

Q: (Richard Chartrand) **On the point that students get 1-10 hours of instruction per year do we know if this is elementary, secondary or both.**
A: (Ellen)The national data visualization of number of hours over a school year / semester that a teacher typically spends on covering climate change topics does include K-12 teachers; however when we analyzed with only teachers from grade 7-12, we found similar trends (see Fig. 74 Climate Change hours of instruction [gr. 7-12 educators] in full report). When the closed-sample teacher population was segmented to only gr. 7 - 12 teachers the sample size was less than 30 teachers, so the sample size is too small to reliably report on.

Q: (Adam Young) **How will LSF engage with SK/AB folks to explore the regional discrepancies and consider different ways CC communication might take place there?**
A: (Pam) We're hoping to do similar sessions to this with stakeholders in AB and SK to share the data and engage stakeholders. LSF has an ongoing dialogue with school boards and ministries in AB and SK. We need to have a broader conversation with stakeholders with a communication focus in those two provinces.

Q: (James Bartram) **Do we know if the respondents reflect the socio-economic, or the ethnic, cultural diversity of Canada?**
(Ellen) All of the closed sample data is weighted according to Stats Canada demographics and is therefore representative of the Canadian population.

Q: (Bob Willard) **Was there a correlation between respondents with a high level of education on climate change and those taking action?**
A: (Ellen) I'd have to go back and dig into the data, but when we looked at the knowledge questions and their correct responses, there wasn't a correlation which was very interesting.

Q: (Paul Elliott/Richard Chartrand) **There seems to be a constant (perhaps statistically significant) difference with Quebec. Do we have a few assumptions as to why that might be? Do we know if education in QC puts a greater emphasis on climate change?**
A: (Ellen) At this point - another project I've been working on has been mapping curriculum expectations across every region and so within that, Quebec does have some strong support within the curriculum. But I can't speak authoritatively at this point as to what's happening in Quebec.

Q: (Jennifer Trampleasure/Mya) **Wondering when this survey was completed in relation to the Climate Action Fridays movement that began in earnest with mass movement in Fall 2019? What influence has this had on the overall understanding and interest of the public? When students such as myself leave school to bring attention to climate change (Ex strikes and walkouts), would you say our decision is supported by most adults?**
A: (Ellen) The data was collected from October 2018 to January 2019 which was really at the very beginning of the climate strike movement. It would be good to re-do the survey to see where the sentiment has changed, because a lot has changed since the beginning of 2019 in terms of climate policy and public awareness to where we are now. So, if anything, probably responses are more heightened but that is speculative. With respect to the support by adults for students to leave school for climate strikes, it's hard to know and it's speculative at best. That is a great question that we should research.

Q: (Leslie Blackwood) **Wondering who this data has been shared with? Ministry of Ed**
A: (Pam) The Ministry of Education is on this call so yes we have shared it and they are participating. It has been shared with ministries of education across the country and we've had conversations with ministries in every jurisdiction. The idea of the research is to make it useful to support change. Mobilizing knowledge is the purpose of today's session. (Ellen) I'll just add that the national report is available on LSF's website. The Ontario report will also be publicly available on the LSF site shortly for people to use and refer to.

Q: (Bob Bernhardt)**To me, one of the (few) advantages of the current COVID pandemic is that individuals are being encouraged to believe that their individual actions can make a significant difference. Do we see this belief moving into beliefs about climate change?**
A: (Ellen) Let's research it! It's hard to know but there are a lot of conversations in webinars, op-eds, etc. happening who have experienced different silver linings and world frameworks and public imagination that are now being seeded as possibilities for how we think about our actions for addressing climate disruption going forward, for what we might call the spirit of the COVID-19 pandemic to deal with the marathon of climate disruption.

Q: (Christopher Jennings) **What is the state of academic research on climate change and pedagogy? Number of papers/conferences etc.?**

A: (Ellen) Really since 2014 there's been a proliferation of people writing internationally. There is now a stronger base of best practice evidence that is available. There are a couple of systematic literature reviews that have been done that have looked at international data comparisons on educational interventions that are effective. Within Canada it becomes much more sparse. There are some academics working in the field but there isn't a national coordinated response for research. Several other countries have national responses or stronger policy around climate change education, including Italy and Pakistan, mandating climate change education as a requirement. There definitely is a need for more research to be done in Canada. This 2019 study is the first that has looked at the number of teaching hours and instructional strategies for climate change education in Canada so there is a lot more work that needs to be done in Canada.

What Stands Out to You About the National Survey Results?

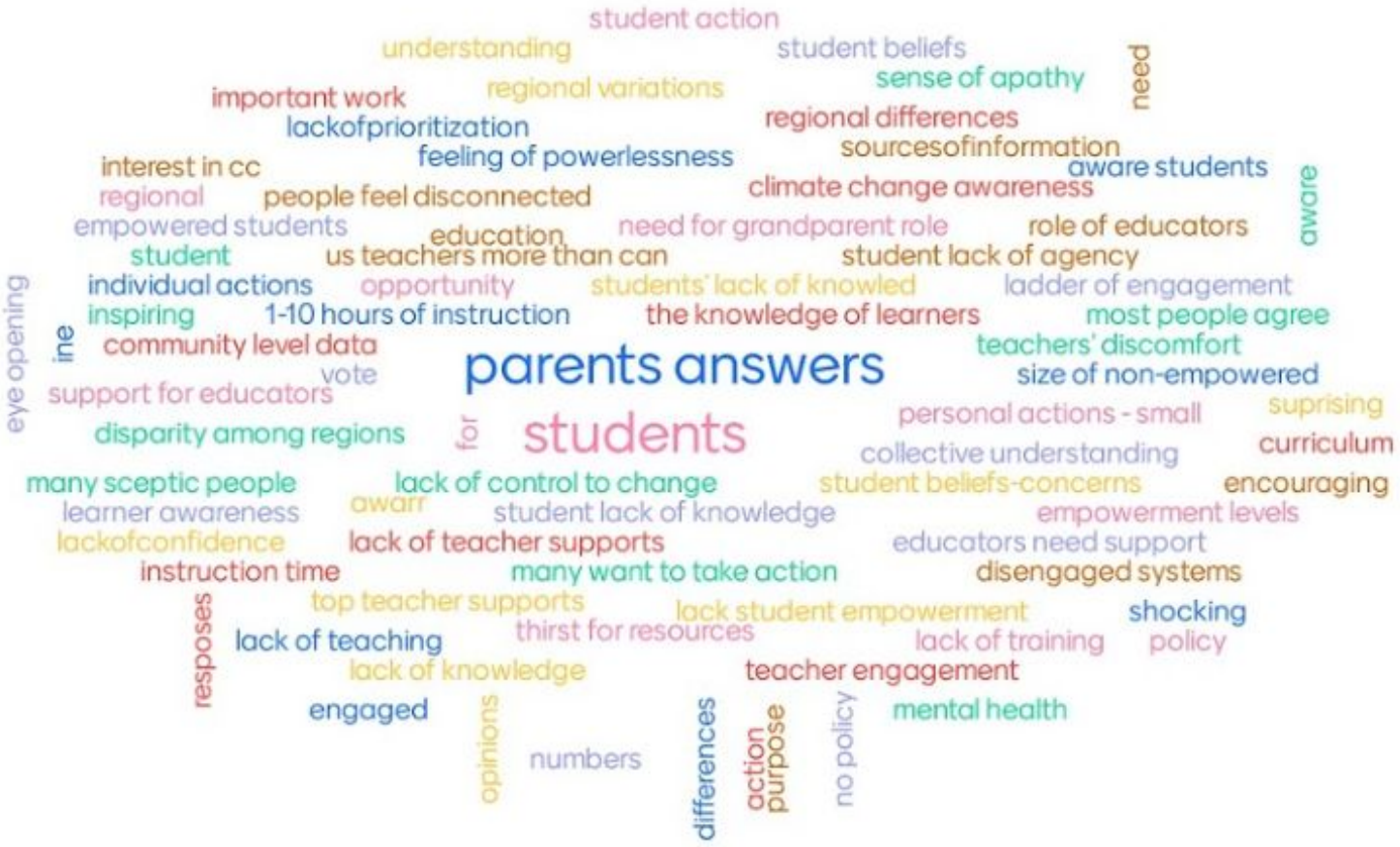
(Mentimeter poll)

- Apparent lack of understanding and knowledge about climate change.
- How little Canadians know about climate change overall!
- Perceptions and reality regarding people's knowledge are very far apart
- So many avenues for quality Climate Change education!
- The need for ongoing education for all citizens from "trusted" sources
- Amount of time spent on climate change in schools
- ALL teachers feel this is important, but they are not doing it
- Teachers do not feel comfortable teaching on climate change
- All agree, need change faster!
- How little education is actually happening
- "Aware" students who felt human action was unlikely to help--shocking!
- The need to get the broader public's buy-in on the need to do something
- We need leadership and better signals that climate change matters
- There are clear trends indicating the students are committed to action on climate change
- The Canadian understanding of what causes climate change.
- The regional disparities regarding attitudes towards climate change
- That most teachers agree that it is their role to teach climate change - not just science teachers
- Need for more professional support for all teachers to teach about climate change across subject areas
- Seems like there is a need for info but also inspiration for youth
- The number of respondents that are unsure about the role of GHGs despite decades worth of evidence
- We need change in education policy and accountability measures in education to ensure it is being taught
- The desire for coherent and accurate education on climate change
- Cognitive Dissonance – Canadians think they know about climate change but don't
- Climate Change awareness is best raised from reliable trusted science from trusted people in circle of influence

- Perspectives on individual actions vs policy change
- The low understanding of the effect of GHGs on climate change!
- AB and SK perhaps reflect the economic realities of communities
- Lack of information on climate change in school curriculum even though there is a large demand for it
- That "climate change awareness" is a field of anxiety but not an area of knowledge per se in the respondents surveyed. This matches with overriding discourse about climate change in a global setting
- Only 14% answered 8-10 questions correctly about climate change. It's a very small percentage!
- Canadians need to be better informed about climate change. Curriculum must reflect this to help guide teachers to include it in their lessons
- True facts about climate change are not getting out as there is media bias
- Wondering what actions the 2/3 of participants are personally doing to mitigate climate change?
- Apathy or disbelief - especially 46% of students
- Some information we already know but we are collectively not necessarily always doing the right things

What was most interesting/surprising about the survey results?

(Used a Mentimeter poll to generate the comments below)

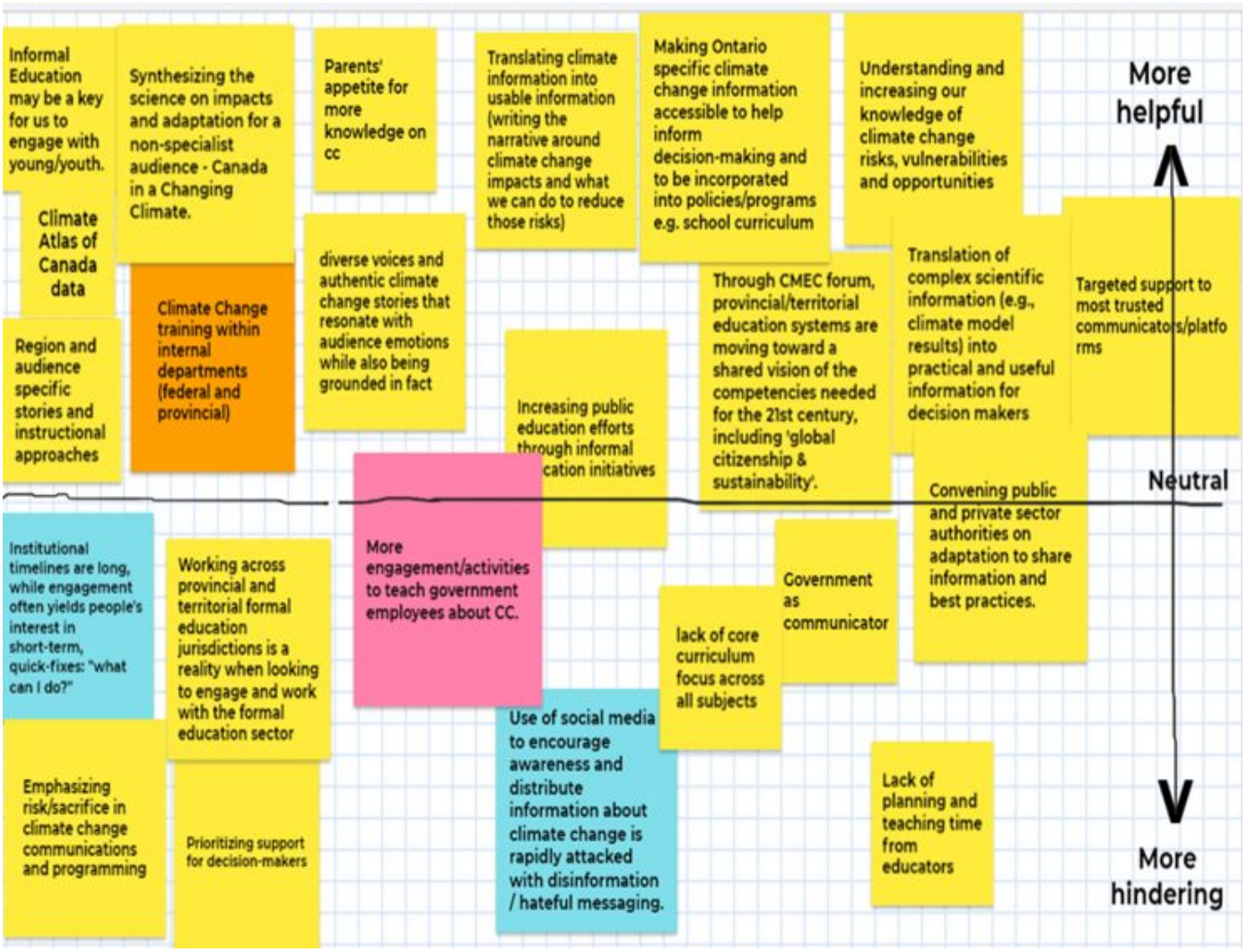


Current reality: helping and hindering forces for climate change education

(by sector using Google Jamboard)

Academia and Education Associations

Government

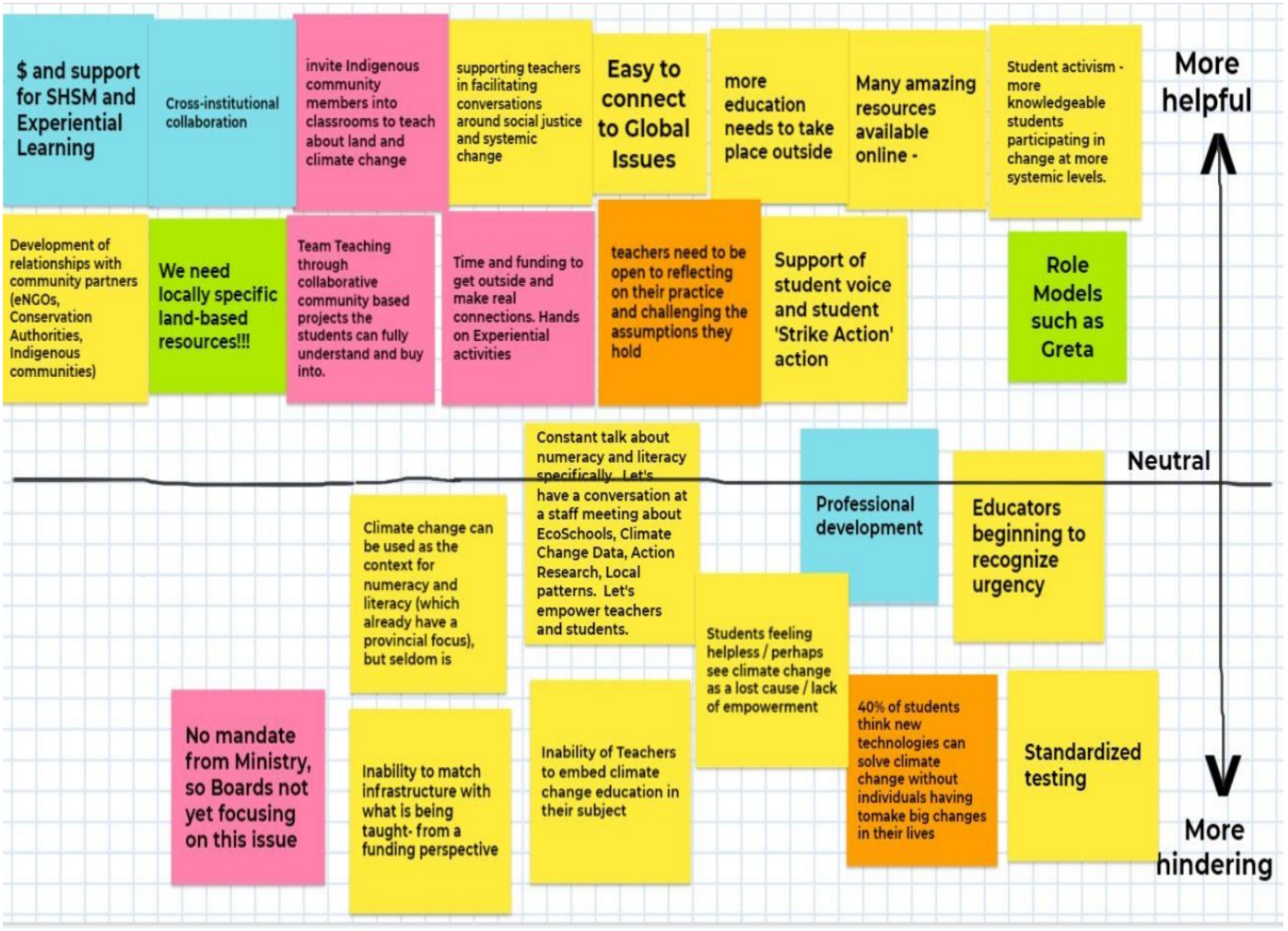

Informal Education may be a key for us to engage with young/youth.
Synthesizing the science on impacts and adaptation for a non-specialist audience - Canada in a Changing Climate.
Parents' appetite for more knowledge on cc
Translating climate information into usable information (writing the narrative around climate change impacts and what we can do to reduce those risks)
Making Ontario specific climate change information accessible to help inform decision-making and to be incorporated into policies/programs e.g. school curriculum
Understanding and increasing our knowledge of climate change risks, vulnerabilities and opportunities
More helpful
Climate Atlas of Canada data
Climate Change training within internal departments (federal and provincial)
diverse voices and authentic climate change stories that resonate with audience emotions while also being grounded in fact
Through CMEC forum, provincial/territorial education systems are moving toward a shared vision of the competencies needed for the 21st century, including 'global citizenship & sustainability'.
Translation of complex scientific information (e.g., climate model results) into practical and useful information for decision makers
Targeted support to most trusted communicators/platforms
Region and audience specific stories and instructional approaches
Increasing public education efforts through informal cation initiatives
Neutral
Institutional timelines are long, while engagement often yields people's interest in short-term, quick-fixes: "what can I do?"
Working across provincial and territorial formal education jurisdictions is a reality when looking to engage and work with the formal education sector
More engagement/activities to teach government employees about CC.
Government as communicator
Convening public and private sector authorities on adaptation to share information and best practices.
lack of core curriculum focus across all subjects
Use of social media to encourage awareness and distribute information about climate change is rapidly attacked with disinformation / hateful messaging.
Lack of planning and teaching time from educators
Emphasizing risk/sacrifice in climate change communications and programming
Prioritizing support for decision-makers
More hindering

Business and Foundations

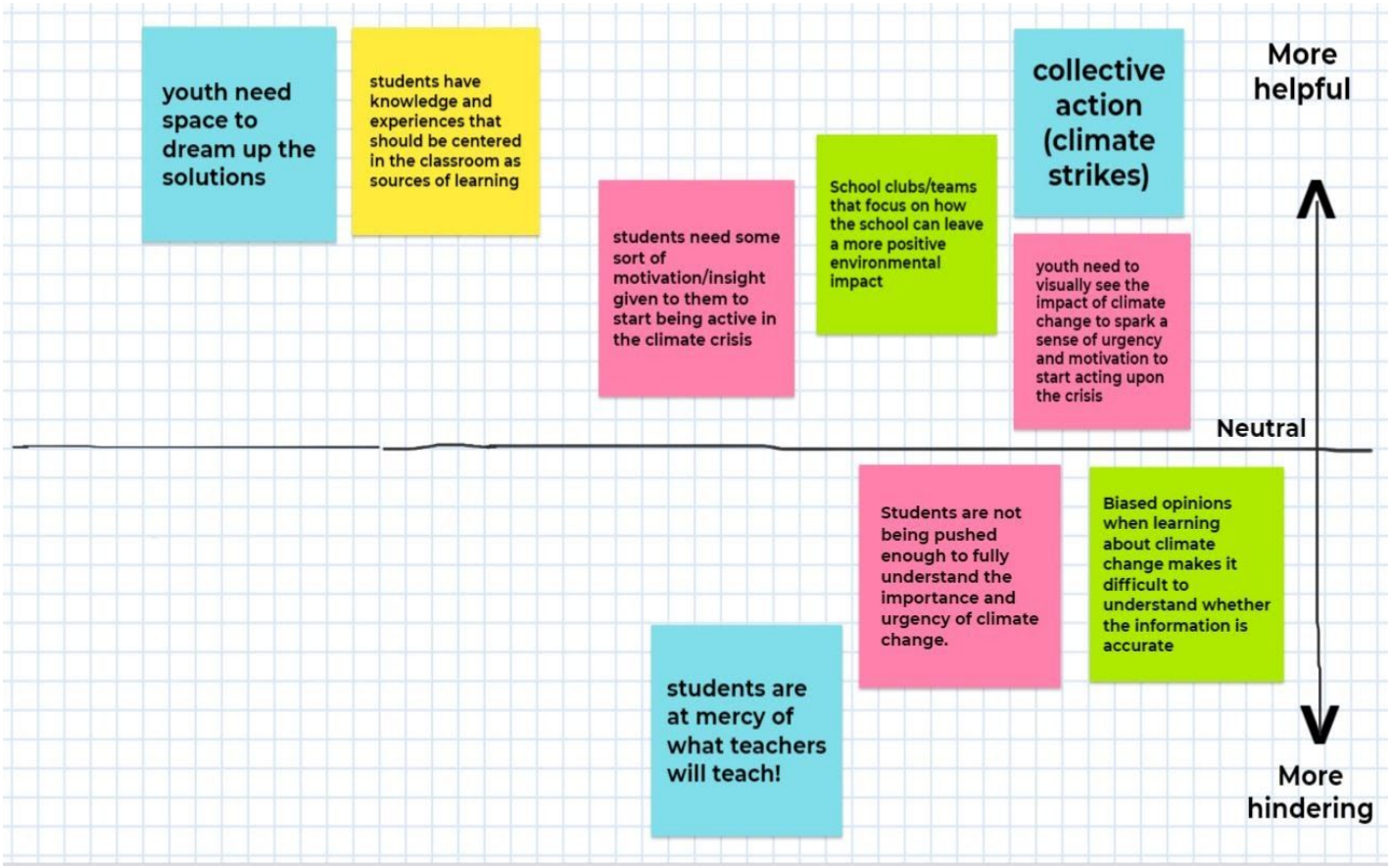
NGOs


More helpful
Challenging assumptions of colleagues of 'highest impact' activities. - Using this as a teachable moment.
NGOs can target adult education and people outside the school system
Always looking for new partnerships with non-enviro folks.
Many NGOs offer educational toolkits related to their work
Hosting conferences with a strong climate change focus, including intersectional approaches.
Building awareness of climate change among new immigrants: a new source of activism
Collaborating with other NGOs (combined effort increases CC education reach, but also competition for funding)
Neutral
Provincial government support
Greenwashing by our own circles to ensure funding, making CC tokenistic.
NGOs have to approach school boards/teachers individually to support them--we aren't working together on providing resources.
Balancing in-person and virtual PD, recognizing emissions/impact decisions for either choice.
More hindering

Teachers and School Boards



Youth


youth need space to dream up the solutions
students have knowledge and experiences that should be centered in the classroom as sources of learning
students need some sort of motivation/insight given to them to start being active in the climate crisis
School clubs/teams that focus on how the school can leave a more positive environmental impact
collective action (climate strikes)
youth need to visually see the impact of climate change to spark a sense of urgency and motivation to start acting upon the crisis
More helpful
Neutral
Students are not being pushed enough to fully understand the importance and urgency of climate change.
Biased opinions when learning about climate change makes it difficult to understand whether the information is accurate
students are at mercy of what teachers will teach!
More hindering

What needs to be done to advance climate change education?

(Whole-group brainstorm using Mentimeter)

Federal Government

National Strategy

- National strategy around climate change education
- Drive strong policy and incentive to support change
- Provide funding to make climate change education a priority for all Canadians
- Replace the GDP with a GPI (Genuine Progress Indicator) with heavy weight on climate change mitigation

More Research & Development

- More research & development on climate change
- Tie research funding to climate change objectives
- Fund research on climate change education
- Coordinated research among academia (e.g. Ellen discussed how Italy has something in place like this)
- Make their research and carbon reporting more accessible for a student audience
- Give clear directions to federal agencies (like SSHRC or NSERC) that climate change education should be funded and prioritized

Lead by Example

- Lead by example by incorporating sustainable policies at the federal level
- Use sustainable public procurement to favor suppliers who have the most aggressive GHG reduction targets

Communication

- Communication/education/knowledge building support
- Focus limited funding and support on trusted communicators and platforms
- Align what we have learned – people value hearing from scientists but primarily through media sources
- One place for climate change communication of trusted sources where people can learn about climate change
- Federal government should support non-formal education opportunities provided by communities, civil society and the media, all of which play an important role in conveying information about climate change mitigation and adaptation
- Offer funding for education for all citizens

Formal Education & Curriculum

- Accept that formal education is not only a provincial responsibility
- Step in to mandate climate change and environmental education

- Work with the Council of Ministers of Education Canada to make climate change education mandatory
- Information sharing among provinces and territories regarding climate change education policy
- Get all provinces and territories to review their K-12 curriculum to ensure that climate change education is a priority
- Provide criteria/guidance for Provinces and Territories on how to do this
- Promote collaborative projects between scientists, data, and teachers & students
- Create curriculum and teacher resources
- Provide funding to the education sector to drive GHG reductions through energy savings
- Better partnerships with provinces around funding

Invest in NGOs

- Invest in NGOs and give them the resources to create more resources and train more teachers
- Nationally funded program similar to federal coding initiative

Opportunities for Youth

- Create opportunities for teens and youth to become more educated about climate change
- Support developments in a new green economy so that youth see their role in the future
- Improved rules or guidelines to grab the attention of the younger population

Provincial Government

Policy

- Implement strong policy at education level
- Be clearer about the goal of the education. What do we want the students to DO?
- Integrate climate change into other curriculum - make it mandatory in ALL grade and subjects
- Avoid any temptation to remove climate change from the science curriculum, but show how it is relevant to all subject areas
- Make climate change education part of all subjects especially in redesigning the careers course to encourage the growth of new employment possibilities
- Embrace moves to inquiry-based learning and use climate change education to show how everything is connected
- Make changes to curriculum (ie.specific number of hours that are required to be spent on environmental education in all subjects)
- Mandate education about climate change from a young age to create a fluid conversation is schools
- Mainstream climate change in the curriculum - not just the climate science, but the impacts on the economy, culture and society
- As formal education (K-12 and Post-Secondary) transitions to “interdisciplinary” learning and not traditional (past) educational practices, will the notion/concept of Climate Change emerge not as a separate focus/subject, but totally inter-related
- Encourage research on climate change pedagogy
- Focus on the younger students in elementary

- Include topics on business related climate action initiatives e.g. sustainability performance disclosure and associated frameworks, Taskforce on climate-related financial disclosures), We Mean Business Coalition

Collaboration

- Strengthen inter-ministerial collaboration between Environment and Education
- Align with federal government, have a consistent and shared approach and recommend sustainable policies
- Speak about climate issues in the media publicly and often
- Educate the general public at the grassroots level

Teacher Training

- Promote capacity-building of teachers and education leaders. Teachers and non-teaching staff need to understand climate change
- Provide professional learning for all teachers
- Province wide training (with funding) around teaching climate change and Indigenous issues
- Increase support the growth of NGOs and provincial stakeholder group initiatives providing PD and programming for schools
- Provide funding for the education of climate change

Learning Resources

- Provide **locally-adapted materials** for classroom use
- Hands on in the community. Make it relevant and immediate. Empower!
- Collect the great resources already available in one place for teachers.
- Fund educational resources
- Centralize climate information/data so it's available for educators to use and incorporate into curriculum
- Bring in Indigenous educators to teach about land and climate change
- Help businesses fund/support education and provide business with the right educational materials

School Board Policies

- Make it a priority in Board and School Improvement Plans
- Tailor their strategies to what was learned from the ON research (ie. not simply follow national averages/lessons)
- Keep up the pressure on school boards to make education relevant to the challenges we face
- Make school boards accountable for their initiatives in CCE
- Follow up on Acting Today, Shaping Tomorrow – where it states that all grades and all subjects should be incorporating environmental education. Provide funding and resources to MAKE THIS ACTUALLY HAPPEN!
- Look to other good provincial projects (Classrooms to Communities in BC)
- Support environmental leads in school boards to support educators
- Align higher education and school districts to develop appropriate curriculum.
- Fund and employ Indigenous educators in all school boards
- Set goals to create sustainable schools and practices, then celebrate the accomplishments that are met

- Set goals and metrics to measure progress and report out on them
- Form committees researching the impacts of sustainability efforts at the board level
- talk to parents about climate change

Youth Voice
- Engage student voice and leadership in this capacity
- Collaborate with one another and teachers
- Work with local government officials to show that youth are aware of climate change

Infrastructure
- Support changes to infrastructure so that the physical space students learn in reflect climate change education
- provide incentive for energy efficiency programs
- Use sustainable public procurement to favor suppliers that have aggressive GHG reduction targets
- invest in upgrading schools as living labs for low carbon buildings
- Support and encourage the use of the natural environment in learning

Educators and School Boards

Policy
- Mandate sustainability policies and include in system priorities
- Incorporate environment and sustainability into multi-year and operational plans, identify metrics and then measure them
- School Boards should all hire a system- level Environmental Education Lead
- Stop putting so much importance on “results” and prioritize creativity and research

Networks
- Build, fund and support a networks of champions to create leadership/expertise in every school

Professional Development
- Provide locally developed and supported professional development (teacher train the teacher) activities for all curriculum - Host dedicated PD days on this topic
- Required Professional Development for all teachers annually
- Examine research and relevant policy to inform their teaching practices and activities
- Connect boards to community partners and Faculties of Education to promote research to practice opportunities
- Training on how to use climate information and how to apply it
- Provide clearly written research articles for teachers

Teaching Climate Change
- Teach climate change education in every part of the curriculum
- Teacher collaboration to plan multidisciplinary school-wide climate change experiential learning programs/projects alongside their local community/industry
- Educate about climate change in a holistic and fluid way across all curriculum
- Engage in student led opportunities to teach students through multi credit or SHSM programs
- Experiential hand-on learning

- Engage younger students with climate change educational activities
- Support student initiatives and action
- Support team teaching in high schools
- Teach climate change in the context of the Green New Deal

Operations
- Develop a better understanding of how their school buildings operate and what could be improved
- Emphasize impacts and adaptation to increase awareness of lived experience of climate change
- Help students/teachers understand the impact of their actions on operations of schools

Resources & Funds
- Provide resources and funds for classroom implementation
- Learn and discover web platforms dedicated to virtual learning

Teachers' Associations
- Teachers' associations - invest in a standardized professional development program on climate change; school boards recognize this as a credential to teach climate focussed curriculum.

Community Organizations
- Reach out to local community organizations
- Support and assist in environmental action by students and community
- Implement new clubs and activities that revolve around participating in environmental projects
- Join local climate change advocacy groups and encourage friends to do the same

Business and Foundation

Partnerships
- Encourage relationships between forward thinking industry partners and schools in terms of collaborative and supported community-based improvement plans
- Partner with local education facilities
- Join Boards of environmental agencies
- Connect to schools as community partners and model new ways of doing business

Politics
- Support climate-smart politics: Government policy is a strong lever that can shift the needle towards a low-carbon future

Funding
- Support funding opportunities to develop resources and advance climate change education
- Funding is desperately needed to fund climate change education
- Provide resources and supports for NGOs and universities
- Support partnerships
- Fund & support scholarships and community action projects led by youth
- Invest in programs dedicated to schools and young

- Provide leadership and support funding for key initiatives
- Foundations should invest in the "bread & butter" projects rather than only giving short-term funding to "innovative" projects.
- Fund climate change education research with an intersectional lens
- Fund new, novel orgs and initiatives
- Fund conferences
- Create challenges and other projects that invoke the creativity of students and communities to expand the suite of options for how we deal with climate impacts

Sustainable Practices

- Model sustainable practices
- Lead by example
- Make sustainability a priority in business operations
- Innovate, innovate, innovate
- Innovate their business to implement environmental policies and to advance resources to accommodate the environment
- Increase transparency in supply chain and GHG emissions
- Measure your carbon footprint: You can't change what you can't measure.
- Highlight the impact of climate change on their operations
- Model responsible sustainability actions within their own organizations - no single-use plastics, lower GHGs, paperless offices, etc
- Run a sustainability day that speaks to work on climate action and make participation available to public
- Assess their bricks & mortar buildings and align to green standards
- Train employees on climate change
- Advertise and celebrate positive practices
- Create standardized carbon footprint calculators for orgs locally
- Educate their stakeholders, from employees to shareholders
- Support just transition measures
- Dedicate resources in their organization to support/drive change

Spread the Word

- Help spread the word to a wide variety of audiences
- Encourage general public to become involved
- Businesses: continue to change their practices to recognize the impact climate change will have, and communicate those changes widely
- Create something that can engage younger people such as something to share on social media
- Provide information on what local communities are doing to address climate change.
- Play active roles by advocating for more CCE in all of their circles of influence
- Use marketing mechanisms to showcase climate leaders
- Use their brand to give voices to young

Careers

- Advertise their adoption of Environmental, Social and Governance principles and climate financing models, making these practices normalized and providing entry points for students beginning their careers

- Build greater awareness of rapidly evolving career opportunities in environmental sustainability
- Engage high school students with implementation - community service hours
- Scholarships linked to emerging University programs on climate change

Education Associations and Academia

Accreditation

- Ontario College of Teachers should require climate change education to be part of accreditation for teacher education programs

Pre-Service Teacher Education

- Re-orienting pre-service Teacher Education to be interdisciplinary with a focus on sustainability, community, and humility in all their manifestations
- Make climate change education a priority and a mandatory part of all teacher candidates' courses and practicum
- Faculties of Ed should be the leaders in climate change education by modelling this with their own students
- Make environmental education mandatory for ALL teacher candidates in all Faculties of Education
- Support teacher candidates in developing ability to embed into subjects
- Support knowledge mobilization
- Develop relationships between colleges and universities and local school boards
- Incorporate business related climate action topics into curriculums e.g. sustainability performance disclosure and associated frameworks, TCFD (Taskforce on climate-related financial disclosures), We Mean Business Coalition

Research

- Establish research funding to develop new approaches to teaching climate change Connect with local school boards around research
- Partner with NGOs to help with translation of research
- Academia has an important role to play in researching climate change education and implementing it
- Bring the state of Canadian research effort in line with international state of play
- Bridge the research-implementation gaps to build a case for government climate change policy and investment prioritization
- Do the homework to understand the issues from scientific and policy angles, and then use this understanding to inform their research plans and professional activities
- Conduct research and share results on climate change education in clear accessible language to all stakeholders

Youth

- Partner with schools to empower youth

Collaboration

- Collaborate with stakeholders to create and fund environmental education

- Faculties of Education should be working more closely with faculties of environmental science and studies on research and teaching in climate change education
- Resources for subject groups to create materials
- Work with school boards and NGOs to develop high quality professional learning
- Connect with non-science subjects and SMEs
- Get university-level environmental studies students to go into the classroom

Advocate
- Advocate with the Ministry
- Lobby federal and provincial governments
- Collaborate with governments to identify climate information needs

Knowledge
- Build knowledge base for teachers on climate education
- Understand what resources are available to help equip their teachers to educate
- Create fact sheets to access credible facts/stats that can be used in conversations, including how to identify greenwashing
- Include awards/bursaries to recognize outstanding achievements regarding climate change

Youth

Speak Up
- Use your voice, speak up
- Stay vocal
- Youth need to know that they have a powerful voice! Use it!
- Advocate at your school
- Let teachers know about what they want to learn about
- Help their parents understand it and support it
- Challenge your teachers to teach relevant information and skills!

Get Involved
- Get involved and learn more about importance
- Students should be more involved in curriculum planning both in the class, school, board and ministry levels
- Support and influence the transformation of formal education to prepare individuals with the understanding and abilities to “sustain the wellbeing of all over the long term”
- Take to the streets! Strike every Friday until governments and businesses fix it
- Submit their ideas and projects, engage

Leadership
- Take on a leadership role for the younger students
- Make climate change education a priority through the climate strikes
- Create or involve in a club or team to advocate for the environment
- Involve students in understanding the impact of their choices on school operations

Be Bold!
- Youth need to be bold and demand a better curriculum related to climate change
- Ask for more resources

- Take the initiative to open their minds up
- Understand the role they have for shaping future
- Ask for more action from their schools and communities
- Ask questions, seek information, be brave - speak out
- Demand that it be taught and discussed in the classroom

Take Initiative

- Take an interest - Be the change!
- Take the initiative to open their minds up
- Focus on climate change whenever you have a choice for research project
- Join cooperatives that are working on local solutions
- Get your teachers involved in a climate change club at school
- Get involved in innovation projects to solve climate change problems
- Access provincial funding for summer scholarships and projects
- Be clear about the magnitude and shape of climate change - and understand the differences in individual actions (turning lights off vs. changing the culture about taking flights for vacations)
- Avoid sharing social media posts that are not credible without looking into the science first
- Participate in activities, contests, projects, etc. that are presented to them
- Empower each other
- Bring environmental education into class discussions
- Request materials for your school library.
- Educate newcomers
- Choose responsible/sustainable NGO products (e.g. t-shirts) and educate consumers through these choices

NGOs/Community

Education Resources

- Collaborate in the delivery of educational resources & supports
- Continue to create teaching packages relevant to climate change- continue to fund and support and elevate voice in this regard
- Provide educational tools and resources that are catered to different audiences around climate change
- Build capacity with educators through training, workshops or developing guidance
- Develop lesson plans based on their reports and research
- Stage Inter-provincial conferences
- Exchange best practices
- Provide support and sponsorship to key climate change initiative

Awareness

- Continue building public awareness
- Educate at the community level
- Focus a big spotlight on the 103 "carbon majors"
- Share examples of positive outcomes to encourage action

Advocate

- Continue to advocate for climate change

- Be part of the education curriculum
- Stay vocal
- Request funding
- Help make the connection between local change and action
- Work with businesses to help support them and spread the word
- Help others understand what's priority to cover, when there are so many areas/topics to cover
- Summarize and share research, data and resources to build capacity for teachers

Partnerships

- Engage in partnerships
- Continue to expand networks and collaborate with others on climate change projects
- Work with partners - instead of proliferating conflicting priorities, work with those who are already taking action
- Support the education sector and help education to make connections locally, provincially and globally
- Serve as strategic intermediaries/knowledge mobilizers between policy and practice to influence continuous improvement
- Collaborate with municipalities and school boards to coordinate action and education of all stakeholders and connect those stakeholders
- Make use of data already available, share data with each other, continuous collaboration with multi-stakeholder groups, partner with various experts
- Continue to collaborate with the business sector and be present at conference trade shows to drive more presence related to climate action

Student Voice

- Provide a forum outside of school for student voice
- Speak to youth

Incorporate Teaching

- Incorporate teaching/pedagogy in their thinking on knowledge mobilization and communication of their research projects

Sectoral Action Plans

Government

BRAINSTORM

- Make public education a pillar of federal climate policy
- Dedicate federal funding to support public education platforms
- Provincial/territorial: interministerial communication (Education/Environment/Health)
- Partner with foundations and NGOs that have a great impact, influence, reach
- Involve Teachers Associations/Organizations in on-going engagement
- Federal - clearly advertise where activities are occurring (Greening Government / Procurement, Leading by Example)
- Climate Change training for internal employees to further understand climate change
- Share info on climate change policy priorities/linkages to climate change education
- Information-sharing among provinces and territories on current climate change education policies/best practices
- Invest in creating lesson-plans from government-funded knowledge products and tools
- Federal - seeking more input on strategic documents from target sectors (especially youth and Indigenous peoples)
- Focus on a few web platforms to share their content (instead of spreading in many)
- Raise public awareness of adaptation
- Centralize all climate information to make it accessible for everyone and translating some of the technical information into a useable format
- Translate scientific/academic research into practical information for decision-makers

PRIORITY ACTIONS

1. Use existing national climate information and centralizing local climate information (provinces/territories) on climate impacts and solutions
2. Connect provincial Education ministries to policy leads on climate change education
3. Governments should partner with external partners (e.g. foundations) that are best-placed to communicate climate impacts and solutions.
4. Change in policies and programs to incorporate climate change

Teachers and School Boards

BRAINSTORM

- Need time to collaborate with colleagues
- Support a connection to using outdoors as a learning context and location
- Investigate local partnership opportunities
- Access to specific local information. And then supports to provide assistance with implementing real action for immediate student success
- Identify and collect curriculum resources related to climate change
- Support professional development around how to infuse climate change education into every subject
- More outdoor and place-based education and instructional strategies
- Invite Indigenous educators and elders to teach about land and climate change
- Student-centred instructional strategies
- Make environmental education mandatory in all subjects

- Spaces for teachers to reflect on their practice and challenge assumptions
- Collaborate with students in the design and delivery of courses
- Increase us of inquiry learning to allow more student voice
- Provide specific support to educators - board lead
- Extend classroom learning outdoors
- Bring in cultural perspectives that offer holistic and sustainable understandings based on interconnections/relationships between humans and natural environment
- School-wide action projects
- Vet and provide resources on climate change and science
- Build relationships between school programs and facility operations
- Build networks with local community groups

PRIORITY ACTIONS

1. Increase the focus on extending learning outdoors and using place-based education
2. Provide increased professional learning opportunities and resources (not just documents, but also 'people resources' such as Elders or experts in their field)
3. Increase student voice (by including what students want to learn, and providing them with opportunities to complete student-driven action projects using the inquiry-based learning model as a guide) Celebrate all successes!
4. Teachers need up-to-date and science-based climate change facts in order to facilitate student learning, so students have the correct knowledge upon which to act. (Support is needed for teachers to more easily access current resources.)
5. Incorporate real-world and engaging community connections whenever appropriate

Youth

BRAINSTORM

- Start projects at a local level - partner with local organizations and businesses
- Involve other students with visuals and other engaging activities
- Take the time to learn about the climate crisis and make an effort to create change
- Motivate your fellow classmates
- Create a campaign at your school to educate everyone and bring awareness to climate change
- Find a teacher at your school who is willing to support your actions and guide you through a leadership process to become an environmental leader
- Bring up climate change in class discussions
- Seek out community groups if school does not provide enough opportunity for action
- Encourage involvement in the environmental clubs at your school
- If your school does not already have one suggest starting an eco club
- Demand student representation in district school board decisions
- Fight to have a student/youth representative at climate change decisions in the community/school board
- Older generations stubborn, stuck in their ways (oil/gas). Don't want to always listen to youth
- Propose greener options with benefits
- Convince older generations to do what we don't have the resources to do

PRIORITY ACTIONS

1. Find support - through interested teacher, extracurricular club at school, etc.

2. Motivate your fellow classmates and encourage them to become involved
    a. Creating a campaign or social activity youth can participate in, could collaborate with eco clubs at school, could collaborate with other clubs like student government or athletics so they can "green" their events too
3. Reach out to find community partners to support you in sustainability projects
    a. Projects not just in school but in community as well
4. To influence more climate change education in school:
    a. When you are able to choose your own topic for a project, choose a sustainability topic to educate yourself, your classmates and even your teacher!
    b. Could bring it up to your teacher, asking questions that they may be able to answer, show that you're interested in it - maybe spark their interest!

Academics and Education Associations

BRAINSTORM

- Educators should be explicit about their own carbon footprints and what moves they have taken to reduce them - practice what they preach
- Plan & implement climate action summits at every university
- Broadening the frame on what “counts” as climate impact (hard to assess the impact of education in relation to GHG reductions)
- Supporting consultation with young people on climate action projects
- Lobby for educators to have a greater appreciation of the link between a lack of agency for students and mental health challenges.
- Need to set aside some elements of the curriculum to make room for climate issues
- Forming research partnerships between academia and school boards
- Nuanced leadership
- Consultation with diverse cultural and socioeconomic groups on climate change initiatives and policies
- Introduce all teacher candidates to climate change education as a mandatory part of their teacher training
- Teachers are open to climate issues but are already overwhelmed with many other expectations
- Post-secondary collaboration with school boards to drive climate change education
- Advocate for the presence of climate change education in all degree programs (similar to UBC in their undergrad programs)
- The need to change the existing model for preparing Teachers . . . Not class oriented, but “course of study” orientation. We do not need to add another class.
- Mandatory environmental education in Faculties of Education
- Change the accreditation standards for faculties of ed to make climate change education mandatory
- There is a need to distinguish between classes and courses of study.
- Develop national policies for CMEC, ACDE to guide climate change education
- Commitment to interdisciplinary learning systems thinking, project based learning
- Streamlined curriculum connected SDG’s, global competences
- Opening up SKILLS; smaller classes, project management
- Schools restructured to allow for inquiry based learning
- Resilient student teachers – new teachers
- Rich induction for lead teachers/associate teachers

- Climate change education as part of pre-service teaching

PRIORITY ACTIONS

1. Change the accreditation standards for Faculties of Education to make climate change/environmental education mandatory
2. Post-secondary institutions collaborating with school boards to drive change
3. Lobby for educators to have a greater appreciation of the link between a lack of agency for students and mental health challenges.
4. Consultation with diverse cultural and socioeconomic groups on climate change initiatives and policies

Business

BRAINSTORM

- Lobby governments to replace GDP with GPI (Genuine Progress Indicator) with heavy weight on progress on climate change.
- Funding organizations like LSF
- Build climate change training catered to different audiences e.g. field employees vs. senior level management
- Support governments in retrofitting schools for climate adaptation and energy efficiency
- Dedicate resources to focus on driving actions and keeping climate change being discussed at the organization
- Lobby governments to take action on climate change
- Simplification communication plan
- Encourage grass-roots committees to engage employees about climate change
- Employee training (practice engaging in dialogues to refute climate myths -- need for credible, accessible facts/stats and science understanding)
- Step into the polarization, how do we work to bring people together for action
- Business to step up to show climate change is important to all
- Business to set & track science-based targets for carbon reduction
- Require new hires to be climate literate
- Finding the champions, all different levels not just at the top
- Publicly report on their GHG emission reduction progress, including Scope 3 emissions
- Implement formal programs, not education but working towards tangible reductions
- Explore similar understanding of employee perceptions - ie. What proportion of employee base feel educated, feel they can drive change, etc.
- Socialize concept of TCFD (Taskforce on climate-related financial disclosures) recommendations for implementation with senior management since it supports risk, strategy and material financial impact-based decision making with senior management and supports a transition to low carbon economy.
- Guidelines for responsible purchases (eg paper, T-shirts, furniture, prizes, etc)
- General knowledge finding a metric to have the conversation, reluctance to engage based on not wanting to look inferior to the team, engagement piece to make it understandable 101 on climate change action
- Share educational resources that business owners can share, ensuring correct information is shared and confidence is infused
- Business to make public statements on the importance of climate action
- Companies can bring partners together to help align programs

- Increase transparency in annual reports by using multiple measurements (use metrics that can be benchmarked)
- Ensure we (businesses) allow employees time to attend professional development programs on this topic
- Opportunity to bring options to the consumer to drive consumer behaviour, how climate friendly they are, a direct line to specific product availability on the shelf, more sustainable products

PRIORITY ACTIONS

1. Educating and driving action around areas of influence
2. Give frequent press conferences led by climate scientists on progress (like Covid-19 press conferences) - hear from experts, include metrics and goals, understand where we need to be from where we are. This would signal a sense of urgency and progress.
   Metrics should be on per unit basis and total (referring to company sustainability reports)
3. Greater collaboration

Non-Government Organizations (NGOs)

BRAINSTORM

- Educate newcomers, integrate environmental topics into their programming
- Create a common directory of educational resources
- Target adults - audiences outside the school system - we are trusted and in good position to do that
- Having good environmental practices ourselves - be role models, e.g waste, energy etc.
- Share best practices and build awareness of what resources exist
- Get funding to update resources - context and info changes, needs change

PRIORITY ACTIONS

1. Having good environmental practices ourselves - be role models, e.g waste, energy etc.
2. Support new client groups
3. Share best practices and common directories of educational resources

Final words…

- Good to see the appetite for more information, across all groups
- More information is good, but if the intent is to encourage attitude and behavior change, then we also need to equip and empower. We should address the empathy gap.
- Lots of opportunity to support young Canadians learning from and with each other. A differentiated approach for Elementary, Middle, High School and Young Adults likely makes sense. For AB and SK for adolescents probably more effective if the education is from peer collaboration.
- In ON, environmental education is embedded into every subject curriculum, K-12. It is supposed to be taught in every subject and every grade, but it isn't done as often as it should be.
- Interesting that the focus on climate change in business courses is so low – it is one of the areas where there's a great deal that's changing right now.
- Much has been done to focus on Numeracy, Literacy and Inclusivity over the last 10 years. All of these are very important and should absolutely be highlighted, but we need to carve out more time for these climate change conversations.
- I wonder if so many students are in the "aware" category because they realize that turning lights off and recycling is not enough. Research from UBC shows that the most effective behavioral changes are not addressed in textbooks or other resources.
- We need to have access to and support about how to interpret and teach with raw data in the classroom. Not every teacher is a statistician :)
- I wonder if people are aware very locally about how climate change will influence their community in terms of health.
- I would love to encourage greater communication between schools and their local partners (conservation authorities, city planners ….). Often these groups have wonderful educational packages and educators to support this conversation in the classroom and the field.
- Students and educators should do their best to move parents and the public forward on these issues.
- My parents are older than most and had a very strict point of view on climate change but the past strikes gave me a chance to show them what is really happening.

Participants

First Name	Last Name	Title	Organization
Awwal		Member of the Ecoteam	Toronto District School Board
Karen	Acton	Assistant Professor, teaching duties	University of Western Ontario
Carolyn	Allan	Director of Marketing & Business Development	Ontario Teachers' Insurance Plan
James	Bartram	VP Education & Youth	Ocean Wise
Martyn	Beckett	Special Advisor	Ontario Ministry of Education
Dahlia	Benedikt	Research Intern, Standards of Practice and Education	Ontario College of Teachers
Bob	Bernhardt	President/CEO	Canadian College of Naturopathic Medicine
Jade	Bilodeau	Catholic Board Student Council President	Ontario Student Trustees' Association
Patricia	Bizjak	Vice-President of Corporate Affairs and Communications	Ontario Teachers' Insurance Plan
Leslie	Blackwood	Vice Principal / Numeracy Lead / Board Environment Committee Chair	Superior-Greenstone District School Board
Janet	Bobechko	Senior Partner	Norton Rose Fulbright Canada LLP
Lindsay	Bunce	Executive Director	EcoSchools Canada
Suzanne	Burwell	Environmental Sustainability Specialist	Halton District School Board
Evelyne	Casaubon	Senior Program Officer, National Outreach Programs	Parks Canada
Richard	Chartrand	USAC R&D Operations & Canada Sustainability Leader	3M Company
Laith		Student President	Toronto District School Board
Jeff	Cole	Teacher	Simcoe Muskoka Catholic District School Board
Sarah	Colley	Regional Environment Manager, Ontario	TD Friends of the Environment Foundation
Max	Cooke	CEO	EdCan Network
Anthony	Cupido	Research Chair, Sustainability	Mohawk College
Marin	Davidson	Project Manager, Sustainable IT Procurement Pilot Project	HP Canada
Dolf	DeJong	CEO	Toronto Zoo

Frances	Delaney	Policy Analyst	Environment and Climate Change Canada
Elizabeth	Dowdeswell	Lieutenant Governor of Ontario	Office of the Lieutenant Governor of Ontario
Frances	Edmonds	Head of Sustainable Impact	HP
Susan	Elliott	Consultant Educator	LSF
Paul	Elliott	Professor of Education	Trent University
Elizabeth	Everhardus	Stakeholder & External Relations Coordinator	Ministry of the Environment, Conservation & Parks
Judith	Fantham	Executive Director	Newcomer Women's Services, Toronto
Ellen	Field	Lead Researcher, Post-Doctoral SSHRC Fellow	Lakehead University
Chris	Floyd	President of Individual Insurance	Ontario Teachers' Insurance Plan
Lisa	Fougere	Manager Regional Analysis and Relations, Atlantic and Quebec Regions	Environment and Climate Change Canada
Emerson		Student	Simcoe Muskoka Catholic District School Board
Samantha	Gawron	Manager of Programs	Learning for a Sustainable Future
John	Godfrey	Chair of Board of Advisors, Alice Insights	Self-employed
Renuka	Holman	Manager, Public Outreach and Education	Parks Canada Agency
Alice	Hovorka	Dean, Faculty of Environmental Studies	York University
Sheila	Innes	General Manager - Indigenous & Community Relations	Suncor
Hilary	Inwood	Lead of Environmental and Sustainability Education	OISE, University of Toronto
Christopher	Jennings	Director	Natural Resources Canada
Andrew	King	Director of Communications	Canadian Teachers' Federation
Tonya	Lagrasta	Sr. Director, Corporate Social Responsibility	Loblaw Companies Limited
Pamela	Lamba	Senior Policy & Program Advisor	Ministry of the Environment Conservation and Parks (MECP)
Susan	Langley	Chair	Learning for a Sustainable Future
MacKenzie		Student	Laurier Secondary School
Isabelle	LeVert-Chiasson	Education Program Officer	Canadian Commission for UNESCO

Kimberly	Luces	Senior Manager, Environment	Algonquin Power & Utilities Corp
Michele	Martin	Educational Consultant	Learning for a Sustainable Future
Catherine	Mahler	Education officer	Ontario Ministry of Education
Elizabeth	McCallion	Grants Manager	Peter Gilgan Foundation
Mya		Student	Patrick Fogarty Catholic Secondary School
Geoff	Mercer	Regional Director General-Atlantic/Quebec Region	Executive Senior Management
Jake	Miller	Acting Director	Project Neutral
Lorraine	Otoide	UNESCO School Coordinator	UNESCO ASP Network
Jasmine	Peacock	Manager, Curriculum Programs	Ocean Wise
Garth	Pickard	Professor Emeritus	University of Regina
Dennis	Price	Executive Director	Environment and Climate Change Canada
Rae-Anna		Student	Thames Valley District School Board
Sheila	Rhodes	Associate Teaching Professor	Ontario Tech University
Marianne	Roaldi	Analyst, Early Learning and Elementary-Secondary Education	Council of Ministers of Education, Canada
Anthea	Rowe	Corporate Social Responsibility	3M Canada
Stephanie	Rozak	Senior Advisor Community Investment	Suncor Energy Foundation
Elaine	Rubinoff	Director of Programs	Learning for a Sustainable Future
Leif	Schenstead-Harris	Policy Analyst	Environment and Climate Change Canada
Pamela	Schwartzberg	President and CEO	Learning for a Sustainable Future
Eric	Shoesmith	Policy Analyst	Environment and Climate Change Canada
Deirdre	Smith	Manager, Standards of Practice and Education	Ontario College of Teachers
Jennifer	Stevens	Program Coordinator	Learning for a Sustainable Future
Jason	To	Teacher	Toronto District School Board
Jennifer	Trampleasure	Teacher	Thames Valley District School Board
Anne	Vinet-Roy	President	Ontario Teachers' Federation

Bob	Willard	Chief Sustainability Champion	Sustainability Advantage
Jodie	Williams	Indigenous Education Lead	Dufferin Peel Catholic District School Board
Adam	Young	Chair	EECOM
Sofia		Catholic Board Student Council Vice President	Ontario Student Trustees' Association
Barbara	Zvan	Member	Canada's Expert Panel on Sustainable Finance