

Climate Literacy at the Roots

Introduction

Educational reform in America has been a topic mired in controversy. Some say that states have an indelible right to cater to their respective inhabitants; others posit that the national government should set the basis on what children should be learning. Through this difference, and the natural roadblocks of the democratic process, educational standards across the fifty states, the district of Columbia and the five territories are patchy at best. At worst, a child from one state could have a masterful idea of one subject, while another from another state could have not been taught it at all. The subject of environmental science is one of those subjects which has been both controversial and sporadically taught about in the United States of America. This absence of teaching is in the face of a problem which dwarfs most others in scope, and one that will take a massive undertaking in all sectors of life to solve. Students hold the power to change this, one step at a time.

Problem

The earth is warming. That evidence is irrefutable even to those who claim climate change is just “natural fluctuations.” As I am writing this, July 10, 2023, the week’s global temperatures are “likely the highest in at least 100,000 years.” We are setting record temperatures all around the world. According to the NCEI, the top five hottest years in annual averaged temperature were 2016, 2020, 2019, 2015, and 2017 respectively. While the evidence of climate change and its effect on the planet rears its head, there has not yet been a significant global mobilization of resources to combat this issue. Typhoons Rai made destructive landfall in the Philippines. Hurricane Grace in Mexico. Ida in Cuba and the northeastern United States. Tauktae in India. Wildfires wreck and destroy homes and lives in Australia and America. Scientists understand that it’s humans who have spurred the climactic yet slow warming of our planet, observing the steep rise in pollutants being released into the atmosphere starting around the industrial revolution. Humanity is threatened with the complete ecological collapse of the world. Even though we understand the issue and its consequences, so many are apathetic in truly trying to solve the issue. One part of the apathy is that the average person “going green” won’t make a substantial difference in curbing climate change. Industries and governments, on the other hand, are a major reason the issue is still getting worse. The average person's pollutant output is not a match for even just the manufacturing of cement, which is just 3% of the world's CO₂ output in 2016. That is still 1.5 billion tons of greenhouse gases out of 50 billion. This allows the average person to get jaded about their impact on the world. Currently, society is stuck in an endless cycle of pledging to curb climate change when disaster happens, and then not following up with the promise when everything goes back to normal.

This plague of apathy is one result of inadequate education in the environmental sciences. In an interview with Harvard, author, and Award-winning journalist Katie Worth stated that out of fifteen hundred American teachers questioned by her, “only 1/3 that are giving students the accurate information that humans are causing the climate crisis.” This national crisis of misinformation only

accentuates the glaring issue that society faces. How can we address an issue that only 33.3% of the population knows fully about? And even then, the education that students are receiving may be undercut by budget deficiencies or undertrained teachers. Other issues arise when politics begin to influence the classroom, and climate literacy becomes politicized to the point of no return. No matter what either side believes, the health of humanity is intricately connected to the health and well-being of the planet.

In the United States, many attempts to establish environmental science standards for climate literacy have died in Congress. There are some already established science guidelines through the National Science Education Standards (NSES), but they are left intentionally vague. It is left to external sources, like Next Generation Science Standards (NGSS), to provide voluntary guidelines that states may or may not follow. While many states have used NGSS's guidelines to create curriculum, there are still holdout states that devote none or very few resources and class hours to climate education. And even among those who do use NGSS's resources, they can pick and choose what to teach. In federal and state budgets, when money is dedicated to climate activism and justice, it is rarely also dedicated to climate literacy.

The issue of allowing even a minority of the population to remain unaware not only hurts the future but also hurts the present. Climate anxiety among youth has skyrocketed with globalization and mass communication. In a survey in the Lancet, of 10,000 people between the ages of 16 and 25, 84% were at least moderately worried about climate change. More than 50% reported feeling sad, anxious, powerless, helpless, and guilty. The psychological distress of climate change and the fear of the unknown impact the daily functioning of people who will grow into world leaders. Additionally, when leaders are uninformed or have learned biases about something as integral as climate change, which can affect future efforts to combat and solve this issue. All in all, the substantive issues that currently exist in learning environments are an early and crucial point that needs to be fixed.

Solution

First, what is climate literacy, activism, and justice? Climate literacy is the basic knowledge that climate change is a human issue, and that humans must solve it. Activism teaches about those who have fought for transparency in the field of global warming and environmental changes, and those who have instituted changes in the system to benefit society. Justice is reparations and visibility for communities who have historically been the most affected by these changes in the environment. All three definitions can be adapted to different conversations, but their base meaning rings true. Literacy alone is a good basis of learning, but without the other two, students cannot fully understand the true impact and importance of this issue. Environmental science in the classroom should at least inform students of climate change in its literal impact and scope. It should inform about the history of how humans have altered the climate and how change is caused. It should also look to teach of the communities who are affected and how students' lives will be forever changed in the future. Solutions should be explored and discussed, and improvements to climate science should be celebrated. The goal of breaking down the

issue and teaching it over many years of education will help students not feel overwhelmed, and be able to see that this issue, while daunting in its scope, is one that can be fixed.

As of this current moment, states across the country have a patchwork of laws, regulations, and standards they follow for climate education in schools. The politicization of this issue also leads to states enacting policies to "teach both sides of the issue," a practice that undermines the entire purpose of climate education. If climate education in this sense stays decentralized, states such as Florida (which has climate change absent in all their educational standards) and Texas will continue to fight progress while other states make marginal improvements to their curriculums. Some kind of federal standards or incentives should be set in motion for a base level of climate literacy. Many excellent scientific resources about climate education currently exist, so most of the work has been finished. Much of the effort would be creating an acceptable base standard and then implementing it for states to follow. Most states do have some level of climate literacy, activism, and justice in their curriculum, but without the federal government paving the way, integration of these ideas will take too much time and too much effort. In the absence of federal intervention, the solution that historically has been the norm is for adoption state by state. Policies are taken from organizations such as the NGSS and made into laws. This approach may be faster in states which already teach some of these policies, but it would be near impossible to pass in states which historically have fought climate literacy in schools.

Education provides avenues for higher learning, socialization, and many other benefits. It's also where most students spend the majority of their time. So, many students become invested in their learning and with this lies an avenue for change. Climate literacy in America has the unique opportunity for students to become true advocates of themselves and fight for better standards in education. Finding a solution to this pivotal issue will not only benefit those who are now more educated on a subject which will affect them in the future, it will also have practical effects to working on a larger solution. If a student is well informed on current climate issues, as well as the causes and the solutions, this knowledge can be integrated into whatever vocation they choose to enter. Take a student who grows up to be a concrete manufacturer, now with prior knowledge, can work towards reducing emissions at their plant. Furthermore, those informed citizens who may have children themselves will most likely pass down that knowledge, starting a generations long chain. Furthermore, it will invest students in classwork learning about real life issues.

Implementation

In Oregon, there already exist some organizations which partner with middle and high schools to provide aid in climate literacy. For example, the Oregon Climate Literacy Education Initiative works to "transform climate literacy curriculum." This is among the many other independent programs which exist just in the state. Students and their parents can introduce an initiative to make it standard to have some level of climate literacy curriculum in schools around Oregon. This can also be achieved by students approaching their representative or senator for sponsorship of a bill. Some states have already taken

action such as this, like New Jersey, mandating that teaching about climate change starts in kindergarten. Oregon itself has a senate bill in committee to set similar standards to New Jersey, chiefly sponsored by Senator Manning Jr.

Federally, a small portion of the discretionary budget can be dedicated for the vitalization of environmental education, by way of grants or another incentivizing method for states. There also can be federal guidelines set which can be created by governmental organizations in conjunction with national environmental organizations. This all can be funded by wrapping it into the current budget for climate issues. Again, the impetus for these changes can be spurred by student movement and representation.

Conclusion

Without a strong education, climate reform will continue to be swept under the rug of larger and more immediate issues until it is too late. With an education, reform can be weaved into advancement as American society progresses unshackled by politicalization. It is of the utmost importance that those who will grow into future leaders, business owners, workers, etc. understand one of, if not the most pivotal issue they will face. Information is power, and providing students with the privilege of knowledge will allow for a faster and more integrated solution to an issue which threatens the world. All these changes can be implemented by those who represent America's educational system: the students. By talking to congresspeople, representatives, councilpeople, mayors, etc. students have the power to change the system. And by doing so, they not only help themselves, but also the future of a planet which is at risk.

Word Count

1,943

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