

Helping Students Cope with Environmental Change and Take Constructive Civic Action

Louise Chawla

A Changing Climate for Education

Today's teachers and students work in a changing climate for education. It is a time unparalleled in human history, when greenhouse gas emissions produced by human actions and inaction are transforming the biosphere in ways that imperil humanity and the larger web of life. Across the world, students are walking out of school to demand political action to address climate change. In September 2019, youth organizers asked older generations to join them in a wave of climate strikes – and an estimated six million people in 185 countries gathered for the largest climate protest in history (Taylor, Watts, and Bartlett, 2019). Contemporary students are facing the consequences of environmental changes that are reconfiguring their future, and educators have a responsibility to help them cope with these challenges and prepare to step into roles of leadership.

This is not an article about teaching climate science. There are good guides for that purpose (e.g., Armstrong, Krasny, and Schuldt, 2018; [Climate Literacy and Energy Awareness Network](#)). Certainly, understanding the science is important; but the scale of climate threats can raise difficult emotions that teachers need to acknowledge – in themselves and their students. This article examines how

children and adolescents cope with the information that they hear about climate change and associated crises like biodiversity loss, and what teachers can do to help them take constructive action rather than falling into apathy, denial, or despair. It shows that social trust and civic action form important pathways to this goal.

Since the 1990s, surveys and interviews that ask young people about their hopes and fears for the future reveal high levels of concern about environmental changes. Around the world, students in elementary, middle, and high schools express worry, fear, sadness, and fatalism (Barraza, 1999; Hicks and Holden, 2007; Hutchinson, 1997; Strife, 2012). Many echo the dystopia feared by a U.S. fifth-grader: "Everything will die out, and there will be less trees and plants, and there will be less nature. It just won't be such a great Earth anymore..." They feel betrayed by their society's failure to protect the planet: "I feel bad...like people just don't care about the world" (Strife, 2012, pp. 43-44). Not all young people voice these concerns, but a significant number do.

In a nationally representative survey of climate change views in the United States, similar emotions of worry, helplessness, anger, sadness, and fear were expressed by a third to a half of adults (Smith and Leiserowitz, 2014). Therefore, teachers need



A teen organizer of a climate strike in Denver, Colorado reads a poem of connection and hope for the land and its children.

to manage their own emotions around climate change in addition to hearing students' concerns. (For resources for dealing with difficult emotions in schools, see Hicks, 2014 and passageworks.org.) In the United States, climate change has become a controversial topic that is less about information and more about political identity, so teachers also need to know how to present the topic as a nonpartisan issue (Armstrong, Krasny, and Schuldt, 2018; Markowitz and Guckian, 2018).

Given these complexities, it is understandable if teachers want to contain the subject of climate change within science classes, but implications of the changes underway spill across curriculum boundaries. Issues like environmental justice, cultural adaptations to altered landscapes, and the need for political responses call for the involvement of broader areas, such as social studies and civics. In classes in reading and writing, students can learn to analyze

environmental claims, evaluate information sources critically, and construct logical, well-documented arguments of their own. Through literature and the arts, they can express their experiences and feelings related to the environment and engage with the experiences of others. (For cross-curriculum resources, see Bigelow and Swinehart, 2014.)

Most research on young people's responses to climate change and associated crises like species loss involves middle and high school students and emerging adults. Environmental educators often repeat the advice of Sobel (1996) to teach "no tragedies before fourth grade," with the reasoning that loading heavy environmental problems on young shoulders can result in "ecophobia," when children feel fear, anxiety, and hopelessness about nature rather than love and care. Sobel (2008) recommends a "ladder of environmental responsibility" in elementary schools, involving early childhood



As part of the international Resilient Cities Program that encourages cities to plan for recovery from extreme weather events associated with climate change, children in Boulder, Colorado use art to reflect on family and community resources that give them strength and resilience in facing change.

classes in schoolyard gardening and wildscaping and postponing the subject of climate change until sixth-grade. This may be sound counsel, but it is impossible to control everything that students see and hear in media-soaked societies. Even kindergarten students worry about “the Earth getting too hot” (Davis, 2010). Teachers need to be ready to respond to environmental concerns that students bring through the classroom door at any age.

How Young People Cope with Environmental Change

To professionals in psychology and public health, the losses associated with climate change have implications for the psychological well-being of adults and young people (Burke, Sanson, and Van Hoorn, 2018; Evans, 2019). Ojala (2016), a Swedish researcher in education, applies basic theory from the psychology of coping with threats and loss to her analysis of middle and high school students’ reactions to climate change, biodiversity loss, and other large-scale changes. She draws on the work of Lazarus and Folkman (1984) and Folkman (2008), who identify three forms of coping: emotion-focused, when people seek to escape painful feelings through strategies like distraction, denial, and distancing; problem-focused, when they try to solve the problem that causes these feelings; and meaning-focused, when they find positive value in the struggle with the problem.

Sometimes emotion-focused coping is necessary for personal care: like taking a break from bad news or seeking support from friends or family. Often, however, it involves defenses like denial and de-emphasizing the seriousness of the problem. It includes focusing on feelings of hopelessness and helplessness, because in this case young people may conclude that there is no point in their trying to do anything (Ojala, 2012a). Emotion-focused coping is associated with low levels of action for the environment (Ojala, 2012b, 2013).

Forms of problem-focused coping that young people report include researching information about what they can do, conserving household energy, bicycling to school instead of being driven, and trying to influence family and friends to take action (Ojala, 2012a, 2015). In the United States (Stevenson and

Peterson, 2016) and Sweden (Ojala, 2012a, 2015), the behaviors that young people report are almost always individualized. This is consistent with environmental campaigns that encourage individual household and consumer-choice behaviors to protect the planet, rather than civic action (Selby, 2010).

Although young people who report problem-focused strategies express a sense of environmental efficacy, a significant proportion also report low levels of subjective well-being (Ojala, 2012b, 2013). This is consistent with general research on coping in childhood and adolescence, which shows that when a problem is larger than a young person can solve alone, individual strategies can impair well-being (Clarke, 2006). In this case, although young people believe it is urgent to act, they feel that their actions are inadequate. This emphasis on individualized actions may be shifting: in a 2019 poll of U.S. teens, one in four said that they had participated in a walkout, attended a rally, or written to public officials to express their views on climate change (Kaplan and Guskin, 2019).

Young people fare best when they employ meaning-focused coping, which is important when a problem cannot be solved quickly but requires persistent engagement over a long period of time (Folkman, 2008). It involves reframing a problem in positive ways to find meaning in the struggle. For example, young people who practice meaning-focused coping reason that societies have become more aware of the urgency of addressing climate change, and people with influence are taking the problem seriously (Ojala, 2012b). Young people who use a high degree of meaning-focused coping are more likely to report positive feelings and life satisfaction and more likely to combine this form of coping with active problem-solving (Ojala, 2012b, 2013).

Different coping strategies are associated with different kinds of hope. Young people who practice emotion-focused coping by denial or distancing themselves from environmental problems express “hope” in the sense of wishful thinking – climate change is not a serious problem, new technologies will soon solve it, or it will only affect people who live far away or in a distant future (Ojala, 2012c). When young people acknowledge the seriousness of global environmental problems yet find meaning

in their own and other people's efforts to take action despite risk and uncertainty, Ojala (2012c, 2017) applies the term "constructive hope," as it encourages constructive action.

In the United States, Li and Monroe (2017) created a measure of climate change hope that applies the hope theory of Snyder (2000). Snyder defines a positive sense of hope as a force for action, and he argues that hope requires a vision of a possible future, an awareness of pathways toward this goal, and a belief in agency to achieve it. In research in the United States (Stevenson and Peterson, 2016; Stevenson, Peterson, and Bondell, 2018) and Sweden (Ojala, 2012b, 2013), both concern and hope, in this constructive sense, motivate action in young people, whereas feelings of despair and hopelessness are associated with inaction.

Strategies to Support Students

How can teachers help young people understand the environmental changes underway, yet encourage meaning-focused coping and constructive hope? The following recommendations appear repeatedly in the literature on education about environmental crises. They indicate that teachers need to combine factual information with helping students to process their emotions and feel a sense of social trust, individual and civic agency, and connection with nature.

Combine the Science of Environmental Change with Information about How to Make a Difference

Accurate information matters. In the 2019 poll of U.S. teens, only two in ten said that they know "a lot" about causes of climate change and ways to reduce it (Kaplan and Guskin, 2019). Understanding the physical drivers of climate change and biodiversity loss is essential: students need to be clear about causes to identify effective solutions. But it is equally important to know what they and others in society can do. When Li, Monroe, and Ritchie (2018) evaluated a program on climate change and forest conservation for high school students, they found that increases in knowledge and hope depended on the type

of information provided. The program was more likely to lead to hope when it demonstrated connections between decisions made today and the potential for positive impacts tomorrow, and when students learned what they could do to address problems (Li and Monroe, 2019; Li, Monroe, and Ritchie, 2018).

Create a Receptive Space Where Students Can Share Emotions

Brown (2016) notes that when teachers fail to create open spaces where students can bring environmental concerns into the classroom, their silence speaks. Silence, she cautioned, can communicate indifference to issues, or fatalism that there is nothing people can do to reduce environmental threats. Silence leaves children to struggle with their concerns in isolation; yet children's fears express a sense of connectivity, an awareness that as the planet changes, it affects all living things. Brown (2016) describes a number of practices to create safe spaces where everyone's feelings can be respected, and painful emotions can be accepted as normal responses to challenging times. (See also workthatreconnects.org.) Although she is writing to elementary school teachers, her suggestions apply to other levels of education as well (Hicks, 2014; Kelsey and Armstrong, 2012). These open spaces enable the deliberative discussions that Monroe et al. (2017) show to be a characteristic of effective climate change education, which enable students to compare perceptions, understand different positions, and reflect on what they learn and hear.

Working with senior high school students, Ojala (2015) found that they are likely to express constructive hope for the future when they believe their teachers will support them and take them seriously if they share their feelings about issues like climate change and species loss. In contrast, those who think their teachers will not take their emotions seriously, or perhaps make fun of them, are more likely to de-emphasize the seriousness of problems. Similarly, when parents and friends respond by being supportive and solution-oriented, young people are more likely to express problem-focused and meaning-





Youth measure a pine tree to investigate the amount of atmospheric carbon the forests in their state can sequester. In the module, "Southeastern Forests and Climate Change," activities increased hopefulness by helping youth understand the role that forest management can play in reducing atmospheric carbon.

focused coping (Ojala and Bengtsson, 2018). When parents and friends are dismissive, or serve as voices of doom and gloom, young people de-emphasize problems. These results suggest that teachers need to help students understand that other people's dismissive and fatalistic responses may reflect defenses against difficult emotions and that they should talk with parents about how to respond supportively to young people's worries.

Encourage the Positive Reappraisal of Problems

Young people who express meaning-focused coping and constructive hope tend to use positive reappraisal: they see a "silver lining" in challenges (Ojala, 2016). Ojala (2016) suggests that when young people seem overwhelmed, adults can encourage them to see alternative possibilities by asking questions such as, "Is this the only way to think about

it?" Or, "If we look back through history, how has humanity solved seemingly unsolvable problems before?" She finds that older adolescents are more likely to use positive reappraisal than eleven- to twelve-year-olds. It may be that younger students find it more difficult to hold both positive and negative trends in mind simultaneously.

Kelsey and Armstrong (2012) argue that students are never too young to learn about opportunities associated with climate change. They suggest, for example, that elementary school students can learn about differences between renewable and nonrenewable energy, visit local renewable energy projects, and see how wind and water produce energy without polluting the air. To prepare young people to find sources of strength as they face problems, Brown (2016) recommends inviting them to reflect on reasons for gratitude in their lives.

Engage Students in Visioning

Hicks (2014) recommends involving students in visioning probable, possible, and preferred futures. Martin Luther King Jr. advised that to ignite constructive change it is essential to paint a picture of a world where people will want to go (Louv, 2011, p. 6). The systematic processes for scenario building and visioning that Hicks (2014) presents require interdisciplinary thinking that brings together science, math, social studies, civics, the visual arts, and writing. Using manageable scales and time frames that often focus on the local area ("what will our city look like in 2050?"), students research and synthesize probable futures if current trends continue, preferable futures that they would like to see unfold, and possible futures based on actions that people can begin to take right now.

One of the complaints of students participating in climate strikes is "why should I study if I have no future?" (LaVille and Watts, 2019). Futures education invites students to consider how they can be agents in defining and moving toward a future that they want to inhabit. Working with high school students, Li and Monroe (2017b) found that those who can think of routes to solve problems associated with climate change are most likely to believe that they themselves and their society will be motivated to take action.

Provide Opportunities for Students to Experience Agency

A large body of research demonstrates that experiences of autonomy, in the sense of choice, along with competence at chosen activities, promote intrinsic motivation and well-being (Ryan and Deci, 2017). A sense of self-efficacy, or belief in one's ability to achieve meaningful goals, is also associated with health (Bandura, 1997). Therefore, it is not surprising that one of the most frequent recommendations to support students facing daunting environmental challenges is to enable them to do their own investigations, select action steps that they find personally meaningful, and experience agency (Kelsey and Armstrong, 2012; Monroe et al., 2017; Ojala, 2017; Sobel, 2008; Winograd, 2016). This direct experience is most often place-based and involves students in action in their schools and

communities, where they are most likely to see tangible effects; however, older students can find connecting with other young activists from distant places inspiring and empowering (Johnson et al., 2009).

Experiences of agency can be individual or collective. For example, Li, Monroe, and Ritchie (2018) evaluated a curriculum that integrated Snyder's (2000) hope theory into activities for high school students who were studying responses of regional forests to climate change. These activities focused on "things I can do" and "things we can do." Through another set of activities, they learned that "others care" and "others are doing things" when scientists and landowners shared their practices to sequester carbon and promote forest resilience. When these components were in place, students' sense of hope was more likely to increase along with increasing knowledge (Li and Monroe, 2019; Li, Monroe, and Ritchie, 2018). In their review of effective strategies for climate change education, Monroe et al. (2017) note the value of projects that engage students in working with others, such as redesigning school systems for energy and waste, doing outreach education, and planting trees.

Foster Social Trust

Ojala (2017) argues that social trust is an essential dimension of constructive hope. When children face large-scale environmental problems, they need to trust that other people are taking action and that there are positive forces at work beyond the limitations of their individual agency. They experience this when they see that others are acting responsibly and when they engage in collective action. Successful collective initiatives depend on widening circles of connection, as teachers, expert advisors, and other people with influence collaborate with young people to help them achieve their objectives.

There are many ways to foster trust by highlighting what others are doing. Scientists and local activists can visit the classroom as guest speakers. There are many films and books about people engaged in environmental regeneration and other initiatives to achieve positive change, including Lynne Cherry's [series of films about youth climate activists](#). When

young people create videos, theater productions, and music about local climate impacts and people who are seeking solutions, they can inspire themselves as well as others (Derr, Chawla, and Mintzer, 2018).

Show that Voluntary Simplicity Can Lead to Fulfilling Lives

Protecting the biosphere requires a shift away from consumer societies

that pursue the unlimited acquisition of material goods toward societies that seek happiness through health, human development, community, and connecting with nature.

This requires an equitable distribution of resources to raise the living standards of those who are disadvantaged, while the privileged accept “voluntary simplicity,” or lives that are inwardly rich and moderate in material consumption (Elgin, 2010).

These choices can benefit everyone, as

Kasser (2016) shows that people who prioritize self-development, service, and relationships over extrinsic rewards like money, status, and material possessions express greater personal and physical well-being. High school students can research this concept of “sustainable happiness” (O’Brien, 2008), and students of all ages can visit local groups who have

chosen lives of voluntary simplicity and invite people who have made this choice into the classroom to share their stories (Kelsey and Armstrong, 2012).

Connect Students with Nature

When people who devote their lives to protecting the natural world identify the sources of their dedication, they speak about time spent in nature more often

than any other experience (Chawla and Derr, 2012; Wells and Lekies, 2012). During time in nature, students encounter what they are working for when they take action for the environment and find strength and inspiration in a sense of connection with all life (Kelsey and Armstrong, 2012; Sobel, 2008; Winograd, 2016). When they engage in wildscaping school grounds and planting school gardens to harbor bees, butterflies, and other wildlife, they simultaneously achieve the outcomes of

enhancing nature in their communities and creating green refuges for themselves (Chawla, 2018). Selby (2010) argues that climate change is commonly treated as a “CO₂ problem” when it is, most essentially, “a crisis arising from a disconnect from the web of life” (p. 38). Giving students time to develop relationships with nature around their school



and community is an important dimension of their preparation for hope and action.

Building School and Community Partnerships to Engage Students in Civic Action

Most of the preceding recommendations can be applied by an individual teacher in a self-contained classroom. Research on “significant life experiences” that motivate people to care for the natural world show that a single inspiring teacher can leave a lasting influence (Chawla and Derr, 2012). But the scale of the risks ahead calls for a fundamental reorientation of education. Environmental education needs to be moved from the margins where it is currently practiced as a special topic in most schools and placed at the center. This does not mean that students only learn about the environment, but it does require that schools and programs in teacher education facilitate the kind of interdisciplinary environmental problem-solving that this article has described to prepare students to lead their communities and countries through the worldwide changes that are already underway. As Whitehouse (2016) notes, “The moral imperative of doing something in response to the existential crisis of climate change, rather than only learning about something, changes the nature of teacher’s work” (p. 163).

When teachers reach beyond their classroom walls and schools reach beyond their borders, they create spaces for civic learning. Skillful civic action incorporates each of the supportive strategies described above. It combines information gathering with learning how to make a difference. It creates spaces for students to talk about how they think and feel while requiring that they attend to the perspectives of others. Sharing views opens the way for positive reappraisals of problems and consideration of alternative possibilities. The success of civic action depends on developing a common vision that people can rally behind. When students engage in civic action, they experience individual agency as each person brings contributions to a common cause, along with collective agency. In learning to work with others for a common aim, they build social trust and see that they are not alone in trying to solve problems and create a better world. They may find that the relationships and sense of

community that they develop along the way become important elements of their happiness. And when they work to protect and regenerate natural areas in their communities, they connect with nature.

Even one childhood experience of civic action for the environment can contribute to lifelong habits of pro-environmental action (Chawla and Derr, 2012). Imagine how empowering education could be if schools regularly engage students in civic processes in their communities, working with others to plan thoughtfully for change. Place-based, project-based, and problem-based learning, which the June 2019 issue of this journal featured, offers models of how to do this. [The Cottonwood School of Civics and Science](#) in Portland, Oregon, for example, has built relationships with city departments and community organizations to enable students to learn real-world lessons in civics at each grade level (Anderson, 2017). This article concludes by presenting an example of partnership-building with the aim of offering civic opportunities for schools across a city.

[Growing Up Boulder](#) was established in Boulder, Colorado in 2009 when Boulder Valley School District, the City of Boulder, and the University of Colorado entered into a formal partnership to engage children and youth in city planning and design. (For a more detailed history and lessons learned over the years, see Mintzer and Chawla, in press.) Boulder was the first city in the United States to ratify the Kyoto Protocol to reduce greenhouse gas emissions and it committed itself to meeting the new targets of the Paris Agreement to combat climate change and adapt to its effects. Many Growing Up Boulder initiatives with young people relate to these goals. Different projects bring in different constellations of community partners, such as the Head Start Center, private schools, after school programs, and arts organizations. The program works with three-year-olds through seniors in high school, though the grade levels involved vary year-to-year.

The City of Boulder funds two half-time positions for a Program Director and an Education Coordinator, both of whom work in the Center for Community Engagement, Design, and Research in the University of Colorado’s Program in Environmental Design. From this location, they can draw on the expertise of

professors in urban design and planning and engage undergraduate interns and graduate students. Each year, program staff meet with city agencies to plan how young people can contribute insights and ideas and make city initiatives responsive to the needs of children, teens, and families. At least half of the projects reach out to historically marginalized groups – children with disabilities and children from working-class and immigrant families.

An Executive Committee composed of representatives from the school district, city government, and university provide program support and strategic planning. Every two months, a steering committee brings together people involved in making projects happen on the ground to share project ideas and plan for collaboration. Teachers and after school program leaders who decide to adopt a project invite the Education Coordinator and city staff to visit their classroom or center to explain

the city's goals to young people and request their help.

Young people begin by studying the challenge they have taken on. When the city decided to develop “15 minute neighborhoods” to encourage walking, they were challenged to identify the important amenities that children and their families need to find within this walking radius. When the greenway along Boulder Creek needed to be redesigned for flood plain management, they investigated how the new design could simultaneously protect biodiversity and attract children, teens, and diverse families. In yet another instance, they explored how communities could strengthen their resources for adaptation and resilience, given local threats of increasing wildfires and floods due to climate change. Each year brings new topics. Young people embark on a series of activities to investigate the questions that city staff bring to them with a curriculum that may take two



As part of its commitment to reduce carbon emissions, the city of Boulder, Colorado resolved to develop “15-minute neighborhoods” where people can find essential services within walking distance. Partners in this plan included third-graders, who set out to evaluate neighborhood resources for children and their families and report back to the city.

weeks, six weeks, a semester, a full academic year, or several weeks during an after school or summer program.

By the time young people are ready to share their work, they have developed well-informed suggestions. Sometimes city representatives and community members come to a presentation given in their classrooms or at an after school center. Sometimes young people present their ideas at public workshops or formal government sessions.

When the City of Boulder set out to redevelop its Civic Area where the main public library, museum of contemporary art, municipal buildings, and a seasonal farmers market cluster in and around the park and greenway that extend along Boulder Creek, students played an integral part in site planning and design. Growing Up Boulder engaged elementary, middle, and high school classes in contributing ideas for inclusive public spaces for recreation and culture in this high hazard flood zone. Students studied the area through field trips, met with city staff and experts, and expressed their ideas through a variety of means, including photogrids, drawings, model-making, imagining public art pieces with a visiting artist, and a visual preference survey. They critiqued the city's initial design scenarios and participated in public workshops. Their combined recommendations for nature play and active play, public art, affordable options for food like food trucks and picnic spots, and spaces for quiet activities like hanging out and reading were submitted to city government in an illustrated report. Many of their ideas were realized, including a new nature playground near the creek for interacting with natural elements, biodiverse landscaping for butterflies and birds, and a new bridge across the creek with opportunities for creek viewing.

Often, they engage in a variety of forums. On their side, city representatives make a commitment to let young participants know how their ideas will be applied. Growing Up Boulder staff track participants and reassemble as many as possible for opening events at places that embody young people's ideas, such as the redesigned greenway.

Growing Up Boulder is an example of partnerships that form a good fit for schools that practice place-based, project-based, and problem-based learning. The book, *Placemaking with Children and Youth: Participatory Practices for Planning Sustainable Communities* (Derr, Chawla, and Mintzer, 2018) describes the program's philosophy and organization in detail and features many of its projects. It also shows how other cities, schools, and nonprofit organizations have adopted similar initiatives to engage young people in civic learning and decision-making. Over time, these partnerships provide a sustained structure for teachers who want to offer young people meaningful opportunities in civic participation and see that their ideas can make a difference. Although formal agreements are important to stabilize partnerships as staff and elected officials come and go, Growing Up Boulder shows that successful partnerships grow their own culture and become deeply rooted in shared experiences of collaboration. When this happens, young people are not the only participants engaged in learning. Partners learn that young people are not just citizens-in-training: when their voices are valued, they bring well-considered, creative ideas that make civic decision-making better right now.

Orr (2017) defines hope as "a verb with its sleeves rolled up" (p. 1392). As young people face current environmental challenges in their societies and worldwide, they develop constructive hope when they learn that they and others can make a positive difference by working together. The contributions of individuals matter, but the high stakes of current challenges require collective action. Through civic action in their schools and communities, young people can learn how to steer public decisions with far-reaching consequences in the direction of protecting and conserving the natural world and building communities in harmony with nature.

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Louise Chawla (louise.chawla@colorado.edu) is Professor Emerita of Environmental Design at the University of Colorado Boulder; a Research Fellow in the Community Engagement, Design, and Research Center in the design program; and an Executive Committee member of Growing Up Boulder, a partnership among the university, city government, school district, and many community organizations to include children and youth in urban design and planning. Her research and publishing covers children and nature, children in cities, child and youth participation in planning and design, and the development of active care for the natural world.