E. Zionts Climate Change Education Resources

**CCE: A Call For Action**

Kagawa, F., & Selby, D. (Eds.). (2012). *Education and Climate Change: Living and Learning in Interesting Times* (1 edition). London: Routledge.

**Overview:** This chapter presents an overview of the present situation of climate change. It is also a call for active social learning that leads to personal and societal transformation.

**Summary:** The section opens with evidence of the consequences of climate change, including projections of future transformations to the environment and society as the global temperatures steadily rise. Kagawa & Selby assert that the science is known and move to argue that now the people must be encouraged to act from a sense of ethics. Thus far, the emphasis has been more on reforming policies and actions vs. transforming how we are in the world.

Climate change learning experiences have, thus, tended to be confined within ‘business as usual’ parameters. There has been minimal recognition of the need to engage learners in openly debating and discussing the roots, and societal implications of climate change scenarios that are likely to play our during their lifetimes, and what needs to be done and achieved of a transformative nature by way of mitigation. (Kagawa & Selby, 2012, p.5)

The introduction finishes with an overview of how each of the contributing authors brings a fresh perspective to the education practices articulated above.

**CCE: Beyond Science**

Gonzalez-Gaudiano, E., & Meira-Cartea, P. (2012). Climate Change Education and Communication: A Critical Perspective on Obstacles and Resistances. In *Education and Climate Change: Living and Learning in Interesting Times* (1 edition). London: Routledge.

**Overview:** In this chapter, the authors describe the various challenges to preparing our citizenry to be able to face climate change. The factors include the emphasis on technical scientific knowledge, the complexity and uncertainty of the issue, the way the issue is represented in popular culture, and more.

**Summary:** Authors, Gonzalez-Gaudiano & Meira-Cartea (2012,) explore questions around the way in which our culture is presenting climate change as a crisis and also it’s solutions. They contend that there is too much emphasis on needing to know the complex science and too much emphasis on individual actions that can be taken to solve the problem. There is not a devaluing of science or personal actions, but this chapter is spent exploring the limitations of this trajectory. Understanding the laws of thermodynamics, the carbon cycle, and changes in atmospheric conditions doesn’t necessarily lead to “the change in behaviors, habits, and values expressed in peoples’ everyday lives” (Gonzalez-Gaudiano & Meira-Cartea, 2012, p.16). Likewise, green-washed consumerism will not ever get to the root of the crisis, which requires “a fundamental change in the established means of transforming, distributing, and consuming energy in order to significantly reduce anthropogenic greenhouse gas emissions, as well as the preservation and promotion of natural carbon storage and sinks” (Gonzalez-Gaudiano & Meira-Cartea, 2012, p.16). The barriers to collectively addressing this life threatening process are overwhelming, but

**CCE Needs To Be Holistic (Nonviolence, anti-consumerist)**

Selby, D. (2012). “Go, Go, Go, Said the Bird.” In *Education and Climate Change: Living and Learning in Interesting Times* (1st ed.). London: Routledge.

**Overview:** Selby makes the argument for education for sustainable contraction/moderation vs. sustainable development. He supports this need with a critique of the field, and a call for education that is place based, anti-consumerist, gives the tenets of nonviolence, and addresses grief and fear, self-growth, and nature connection.

**Summary:** This chapter pushes for education to end its complicity with the infinite growth paradigm. Selby provides several different frameworks listed above that should be included for designing learning that will holistically address climate change.

**Race, Class, Environmentalism**

Roberts, J. (2014, January 26). Race, Class, Climate Change and Outdoor Education [Education]. Retrieved from http://clearingmagazine.org/about/what-is-clearing

**Overview:** This piece is a critique of the environmental movement for acting hypocritical in it’s message and actions in relation to promoting a “norm” of whiteness.

**Summary:** Professor Jay Roberts (2014) calls for stronger education and not just science and technological solutions for the climate change crisis. He argues that the movement will never be effective it is not more inclusive in relation to the images that it uses to promote itself, the cost of the gear “needed” to participate, and the idea that nature is somewhere else, far away, which makes it less accessible to those without money.

**Storytelling/Youth/Great Turning**

Fabian, R. (2015, February 10). Interview Joshua Gorman: Generation Waking Up | Kosmos Journal. Retrieved February 24, 2015, from http://www.kosmosjournal.org/news/interview-joshua-gorman-generation-waking-up/

**Overview:** An interview with education non-profit founder, Joshua Gorman on the new story that young people are writing about education, the world that we are living in, activism, and mentorship.

**Summary:** Joshua Gorman (2015) believes that youth all over the world are waking up to the global crises that are converging. In understanding what brought us to this point, young people are making decisions to leave the ‘old’ ways behind that are no longer serving them or the planet and creating new ways of living, being together, growing food, learning, and getting active. Gorman (2015) believes that a new type of mentorship is emerging, also. After a couple of generations where the youth did not feel that they had true mentorship, they are reaching out and building relationships with elders that are mutually beneficial.

**The War Between Climate Change and Capitalism**

Klein, N. (2014). Introduction. In *This Changes Everything: Capitalism vs. The Climate*. New York: Simon & Schuster.

**Overview:** Naomi Klein names the essential crisis of our time as the war between climate change and capitalism. Her introduction lays out the history of what got us here, the mindset that is keeping us stuck, and also takes look at the climate justice movement and the opportunities and benefits that could arise from taking decisive action to transform the system.

**Summary:** In this chapter, Klein inserts her own experience as a person who formerly avoided the climate change issues to now putting it on the table as the umbrella for nearly all other crises. She then delves into the probable future that will occur if we continue with business as usual with pages of evidence of an unraveling planet. Klein also contends that if we address this crisis, it might not just divert us from a doomed future for all living creatures, but it could actually simultaneously bring healing to a myriad of human and planetary suffering. At the root of the issue is capitalism—a system that inherently depends on infinite growth on a finite planet. By tracking the path of globalization and corporate power, we can see how it came to be the mass ideology. While we are operating under such a system, we will not turn this boat around. Klein adds that the leaders are not going to step in to do what is needed. We have seen over and over again at the various U.N. meetings and regionally, that we are on our own. She writes:

It seems to me that our problem has a lot less to do with the mechanics of solar power than the politics of human power—specifically whether there can be a shift in who wields it, a shift away from corporations and toward communities, which in turn depends on whether or not the great many people who are getting a rotten deal under our current system can build a determined and diverse enough social force to change the balance of power. (Klein, 2014, p.25)

Klein believes that a shift in worldview is needed that digs beneath event capitalism to what she refers to as “extractivism” (2014, p.25). Climate change isn’t an issue to work on, it is a global wake up call.

**CCE and Child Development**

Sobel, D. (1999). *Beyond Ecophobia: Reclaiming the Heart in Nature Education*. Great Barrington, MA: Orion Society.

**Overview:** In this essay, David Sobel (1999) contends that if we expose young people to devastating and/or global environmental issues before they have formed a close relationship to their local natural environment, then the information becomes disempowering.

**Summary:** Sobel (1999) writes, “Children are disconnected from the world outside their doors and connected with endangered animals and ecosystems around the globe through electronic media” (p.3). It is much more challenging to affect real change on those issues that are on the other side of the world than those that they can tangibly interact with in their communities. Sobel (1999) cited research where environmentalists were asked what happened in their childhood that helped them to cultivate their environmental values: “Most environmentalists attributed their commitment to a combination of two sources: “many hours spent outdoors in a keenly remembered wild or semi-wild place in childhood or adolescence, and an adult who taught respect for nature” (p.10).

Three stages of human development are presented with corresponding activities and themes that are appropriate for environmental education and social action: ages 4-7, 8-11, and 12-15. Sobel argues that it is most important to start with students’ fascination, and then facilitate empathy, before moving on to a more global sense of stewardship. If young people do not have the “emotional fortitude and ego strength to deal with the vastness of our ecological plight” (Sobel, 1999, p.28), then we will often settle for teaching it via simplified dichotomies, which are a disservice to their critical thinking in the long run. Sobel also advocates for incorporating rites of passage into education; where youth are nurtured into advancing rights and responsibilities that extend into the natural world:

Instead of bestowing new responsibilities on children, we keep them locked away in schools. We promise we’re preparing them for their future lives as adults, real real responsibility seems like a mirage on a distant horizon. What we need, beginning in middles schools, is an orientation towards service. Environmental projects that serve the community show students the relevance of the curriculum and give community organizations an injection of youthful energy. (Sobel, 1999, p.33)

Without careful consideration of what motivates our children and what types of environmental issues they can developmentally handle, many well-intentioned educators’ efforts can backfire indefinitely.

**Education for Change**

McKeown, R., & Hopkins, C. (2010). Rethinking Climate Change Education. *Green Teacher*, *89*(Summer), 17–21.

**Overview:** Authors, Rosalyn McKeown and Charles Hopkins examine the lack of definition for climate change education and propose that the emphasis should be both on education around climate and education for change.

**Summary**: In this article the authors point out how much of the early climate change education work was by scientists and geographers, but the results haven’t seem to be effective enough. The issue is much more complex than the lens it has been given in the past and needs to reflect the political, social, economic, and environmental perspectives that are entwined. Like several of the articles that I have read for this course, there is a call for a social science lens on the topic, also. McKeown & Hopkins (2010) specifically contend that climate change education should be *both:* education about climate and education for change.

What does it mean to educate for change? What change is predicted so that we can prepare people to adapt to it? We need to distinguish between education *about* change—history courses have done that for years--and education *for* change. We posit that educating for change will help people lessen negative changes, adapt to change, and promote positive change. (McKeown & Hopkins, 2010, p.18)

The authors then lay out a framework that they recommend using for addressing the change aspect of climate change education. This model includes six components: "issue analysis, community and personal decision-making, political processes, social justice, inter-cultural sensitivity, inter-cultural competence, and behavior change” (McKeown & Hopkins, 2010, p.18).

The rest of the article is spent articulating the importance of each of those aspects with examples of how they might be facilitated in education.

**What The Climate Movement Can Learn From Past Social Movements**

Klein, N. (2014). Conclusion. *This Changes Everything: Capitalism vs. The Climate*. New York: Simon & Schuster.

**Overview:** In the conclusion to the book, Klein outlines what the climate movement can learn from the social movements of the past.

**Summary:** Klein (2014) argues that because our governmental leaders are so wrapped up in the ideology of capitalism, we cannot depend on them to take decisive action on climate change. She cites prolific thinkers who assert that she does believe that it is possible to break down the destructive systems that are at the root of climate change. But, it will necessitate a collaboration of all existing social movements, as well as everyday people who don’t now consider themselves activists. Klein (2014) gives historical examples of movements that made massive gains legally and culturally, though she does not hide the fact that the economic successes were more rare. Abolition of slavery is the closest precedent to the scale of political and economic transformation that is needed. While few if any of the past social movements succeeded at their economic goals, Klein (2014) believes that this unique time in history is ripe for such a thing. She considers that because a success for the climate justice movement would dismantle so many longstanding corrupt structures of power, it would truly be a success all existing social movements:

…these economic demands—for basic public services that work, for decent housing, for land redistribution—represent nothing less than the unfinished business of the most powerful liberation movements of the past two centuries, from civil rights to Indigenous sovereignty. The massive global investments required to respond to the climate threat—to adapt humanely and equitably to the heavy weather we have already locked in, and to avert the truly catastrophic warming we can still avoid—is a change to change all that; and to get it right this time. It could deliver the equitable redistribution of agricultural lands that was supposed to follow independence from colonial rule and dictatorship; it could bring the jobs and homes that Martin Luther King dreamed of; it could bring jobs and clean water to Native communities; it could at last turn on the lights and running water in every South African township. Such is the promise of a Marshall Plan for the Earth. (Klein, 2014, p.458)

With the internet granting so many people the option of collaboration and the existing solidarity structures of co-ops, local currencies, and farmer’s markets, there is a chance that we may build a safer world just in time.

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 **Climate Change Debate and Themes**

Chew Hung, C. (2014). Introduction. *Climate Change Education : Knowing, doing and being*. Florence, KY, USA: Taylor and Francis

**Overview:** This book explores what education for climate change entails; discussing the concept of Climate Change Education (CCE) itself, how it can be taught in schools and how public education can be carried out.

**Summary:**  The introduction chapter is an overview of the evolution of the climate change debate. This included some little known information and an interesting timeline of and the various responses of politicians and the public. Chew Hung (2014) placed significant emphasis on how the uncertainty and complexity of the issue, especially in the early days of the discussion, has in turn lead to mass inaction. Of course, those powers the economically benefit from the systems at fault are purposely exacerbating those aspects, too. The economic loss that the common people will be cost from climate change (externalities and costs from disasters vs. the loss to corporations that make money from fossil fuel related industry) has been far under-represented in the debate. The vastly differing perspectives at the political level makes if very difficult for the ordinary person to meaningfully comprehend the issue. Chew Hung (2014) contends that public education should be the medium through which people engage with climate change. He believes that it should be presented both as a scientific and moral issue. The last third of the chapter is spent describing Singapore’s relationship to climate change and the education programs that are being facilitated there.

**Defining CCE**

Chew Hung, C. (2014). Chapter 2. *Climate Change Education : Knowing, doing and being*. Florence, KY, USA: Taylor and Francis.

**Overview:** Chapter 2 is a discussion on the definition of climate change education and how it differs and is similar to environmental education and education for sustainable development.

**Summary**: In trying to understand why climate change education has not yet widely been successful, it is important to explore what is currently understood to be CCE. Chew Hung (2014) contends that CCE has largely been under the frameworks of environmental education (EE) and education for sustainable development (ESD). Sustainable development, as defined by UNESCO is development that fulfills “the needs of the present without limiting our future generations’ ability to fulfill their needs (UNESCO, 2012, as cited in Chew Hung, 2014, p.19). This particular lens considers the environment, but also “poverty, equality, human rights, cultural diversity, and ubiquitous education” (Chew Hung, 2014, p.19). Increasingly, ESD educators have been encouraged to integrate CCE. Because ESD is multi-dimensional, interdisciplinary, action-oriented, participatory, and more—it is an excellent way to address how CCE has been traditionally housed in solely a natural science framework. According to The Belgrade Charter, the global framework under which EE was developed, the goal of EE is to “improve all ecological relationships, including the relationship of humanity with nature and people and with each other which will ensure the improvement of individuals’ quality of life and to ensure preservation and improvement of humanity’s potentials” (Belgrade Charter, 1975 as cited in Chew Hung, 2014, p.21). This chapter points out many useful aspects of the EE model, including the emphasis on action. Chew Hung (2014) critiques the framework for its lack of guidelines on the teaching and learning process. In the remaining sections of the chapter, the need for accurate public knowledge about CC is, the need for teachers to be properly trained in CCE, and a lack of evaluation for understanding whether or not CCE is successful are all addressed.

**Education for Peak Oil**

Hicks, D. (2014). A Geography of Hope. *Geography*, *99*(1), 5–12.

**Overview:** Hicks (2014) argues that geography teachers (especially) need to be addressing climate change, peak oil, and limits to growth in their classrooms in order to better prepare their students for a future that is very different than the present. He focuses on the need for teaching that inspires a sense of optimism and agency, too.

**Summary:** Hicks (2014) begins the article by addressing that conundrum that so many other articles have mentioned: what we know and what we don’t know about climate change. In addition to facilitating learning about those points, he adds that teachers should be well versed in the history of denial—not just of climate change, but also denial of the harms of smoking cigarettes and the ozone hole. This context will show the economic benefits of such promoted skepticism. Hicks (2014) argues that geography can no longer avoid the topic of climate change and that it must be used to cultivate ecological citizenship (p.6). As a proponent of futures education, he promotes the idea of imagining future climate scenarios with students as a curricular activity. The need to give students space to grieve while introducing them to role models and opportunities for affecting changes is strongly emphasized.

**Rights of Future Children**

Orr, D. W. (2002). Loving Children: The Political Economy of Design. In *The Nature of Design: Ecology, Culture, and Human Intention* (pp. 198–214). New York, N.Y.: Oxford University Press. Retrieved from http://sustainabilities.stolaf.edu/files/2014/08/Orr-Loving-Children.pdf

**Overview:** In this chapter, Orr (2002) articulates the ways in which our society is robbing present and future children of a happy, healthy childhood. A variety of challenges and solutions are laid out in an attempt to bring awareness and create change around the state of the political economy and it’s consequences on the rights of children.

**Summary:**

In this compelling essay, Orr (2002) argues that in today’s globalized, commercialized, and environmentally devastated society:

…the normal difficulties of growing up are compounded, directly and indirectly, by the reigning set of assumptions, philosophies, ideologies, and even mythologies by which we organize our affairs and conduct the business of society; what was once called, “political economy”. (Orr, 2002, p.198)

The resulting effect is that we are seeing increasing amounts of “dysfunctional families, depression, youthful violence, and the rising use of chemicals to sedate children” (Orr, 2002, p.198). Orr (2002) offers the following categories to be examined for the negative effects:

**Environmental contaminants:** Young people have wildly high amounts of chemicals in their systems from, “The air they breathe, the food they eat, the water they drink, many of the materials common to everyday use, and fabrics in the designer clothes they wear” (Orr, 2002, p.199). Corporations are not being held responsible for this major health risk.

**Nutrition and exercise:** More children are exhibiting effects of poor diet and lack of exercise than every before, including obesity, but also long-term damage to the pancreas, kidneys, eyes, nerves, and heart (Orr, 2002, p.199). “Indeed, capitalism works best when children stay indoors in malls and in front of televisions or computer screens. It loses access to the minds of the young when they discover pleasures that cannot be bought” (Orr, 2002, p.199). Children from low-income homes are most at risk for being preyed upon by junk food corporations.

**Information:** Orr (2002) contends that negative consequences from TV and Internet addiction for children may include a loss of “healthy contact with adults, making friends, outdoor exercise, reading, contemplation, and creative activity” (p.199). This is in addition to the manufactured “needs” that come from mass exposure to commercials targeted specifically to youth. The amount of violence on television has long been a source of concern, too.

**Education:** Financial priorities in education are skewed with many schools needing repair. The style of learning and teaching is focused on standardization and not creativity and critical thinking. Corporations are having increasing influence on the system. Increasing distrust between generations is a sign of communities breaking down, also. (Orr, 2002, p.200)

**Ecology/Climate:** Orr (2002) lists a number of ways that our political economy is effecting the natural environment and therefore the youth: “biotic impoverishment, climatic change, and pollution are beginning to undo millions of years of evolution and with it the rightful heritage of our children” (p.200). “We are unwittingly undermining our children’s physical health, mental health, connection to adults, sense of continuity with the past, connections to nature, the health of ecosystems, a sense of the commonwealth, and hope for a decent future” Orr writes (2002, p.202).

After those categories, Orr (2002) continues on with a discussion of the lack of emotional intelligence and spiritual impoverishment that many young people suffer from today. In summary, “children in modern society are heavily shaped by a contemporary political economy that stresses materialism, economic growth, human domination of nature, and is tolerant of large-scale ecological risks with irreversible consequences” (Orr, 2002, p.201).

**CCE in the Classroom Debate**

Reardon, S. (2011). Climate Change Sparks Battles in Classroom. *Science*, *333*(6043), 688–689. http://doi.org/10.1126/science.333.6043.688

**Overview:** Climate change has been second only to evolution in triggering protests from parents and school administrators. Teachers want to teach the latest science and avoid politics in the classroom.

**Summary:** Teachers are being asked to present climate change in a ‘balanced fashion’ when it is clear that the latest science acknowledges that this debate is over. “They see climate change now joining evolution as an inviting target for those who accuse ‘liberal’ teachers for forcing their ‘beliefs’ upon a captive audience of impressionable children” (Reardon, 2011, p.688). An interesting difference between these two controversies is that climate change educators don’t have the protection of the First Amendment’s language around religion when climate deniers try to take them to court (Reardon, 2011). Many teachers, who are already under an enormous amount of pressure, feel upset and overwhelmed at the idea of spending class time debating something that is no longer relevant. They believe that the dialogue itself is creating unhelpful confusion among the youth.

**Climate Change Education Curriculum**

Bigelow, B., & Swinehart, T. (Eds.). (2014). *A People’s Curriculum for the Earth: Teaching About the Environmental Crisis*. Milwaukee, WI: Rethinking Schools.

**Overview:** This book is a collection of articles, role-plays, simulations, stories, poems, lesson plans, and art to help teachers bring the environmental crisis into the classroom. The curriculum focuses on the ecological, human, political, cultural, and economic dimensions of what is happening on our planet today.

**Summary:** Editors, Bigelow and Swinehart compiled a very compelling resource for educators after realizing that little was being done to discuss what climate change, the end of cheap energy, and resource depletion among K-12 educators. It is created with an emphasis on the idea that “our curriculum must confront the false dichotomy between the environment and people” (Bigelow & Swinehart, 2014, p.ix). Bigelow & Swinehart (2014) write:

Yes, the ‘environment’ is about polar bears, dolphins, redwood forests, and bees; but it is also about human beings—workers, consumers, families and community members. We call this book a *people’s* curriculum for the Earth because we try to keep the focus on the intextricable link between nature and people. (p.ix)

Another crucial theme in the book is that “everyone on Earth is affected by the environmental crisis, be we are affected unequally, based on race, class, nationality, or location” (Bigelow &Swinehart, 2014, p.ix). The introduction alone covers education for systemic change, critical analysis of capitalism, joy amid crisis, interconnectedness, curricular apartheid, resistance, creativity, and hope. From there, the book is divided into sections highlighting global interconnections, place-based education, facing climate chaos, burning the future, teaching in a toxic world, teaching in a nuclear world, and food/farming. Most articles can be given to students directly and many have discussion questions prepared at the end of the section. Other pieces are written to support the teacher in considering their role in educating for a better world. Overall, it is an excellent resource that excels in its critical analysis; emphasis on justice, interconnections, and action, and introduction to activist people and groups that are at the frontlines of the struggle.

**Talking About Social and Environmental Issues With Children and Teens**

Macy, J., Brown, M. Y., & Fox, M. (2014). The Work That Reconnects With Children and Teens. In *Coming Back to Life: The Updated Guide to the Work that Reconnects* (Revised Edition edition). New Society Publishers.

**Overview:** In this updated version of Macy & Brown’s classic resource collection around their despair and empowerment activities (called The Work That Reconnects), the work’s theories and living examples are highlighted. Additional chapters about working with youth and people of color were also added.

**Summary:** This chapter covers how to talk without children about the social and environmental unraveling that is happening. The authors acknowledge the tough tension between wanting to protect children so that they feel happy and safe in their childhood, while wanting to prepare them for the future and help them to cope with a present time that is rife with injustice and pain. Macy & Brown (2014) contend “Children may know a lot more about what’s happening in the world than adults think they do. And they often carry strong feelings about it” (p.218). Children often adopt their parents’ perspectives on the world and this can be both positive and negative. If parents are fearful, children will often feel the same. If the parents are active in creating solutions, children will feel more hope for the future (Macy & Brown, 2014, 220). Comparisons between climate change and the threat of nuclear war were made. Significant attention was paid to the effects that adult silence on important issues has on young people. Macy & Brown (2014) write that it “conveys fatalism, seeming to say that our collective future is out of our hands, and that there’s nothing we can do to change it” (p.220-221). Silence also can be interpreted as indifference or even teach that certain feelings like “grief, anger, fear, and even compassion for the suffering of people and animals” are taboo (Macy & Brown, 2014, p.221). Rising incidences of child and teen suicides, drug abuse, screen addiction, and crime may be connected to this phenomenon. Macy & Brown (2014) offer several suggestions for hosting dialogue with youth around these feelings and issues. They also give examples and activities from The Work That Reconnects that are modified to work well with younger folks.