
ESSAY/ANALYSIS

Hip-Hop, Social Justice, and Environmental Education: Toward a Critical Ecological Literacy

Michael J. Cermak

Boston College, Chestnut Hill, Massachusetts, USA

This essay describes an educational initiative that used environmentally themed (green) hip-hop to stimulate learning in an environmental science classroom. Students were then challenged to compose their own green hip-hop and their lyrics demonstrated skills that have thematic consistency around what is called a Critical Ecological Literacy (CEL). An analysis of more than 200 creative pieces collected from eight runs of this curriculum over four years shows that CEL can be used as a guiding concept for the creation of curriculum targeting urban areas and racially diverse learners. Several examples of this student-produced green hip-hop are shared to delineate elements of CEL that can help educators evaluate student learning as well as their own teaching materials.

Keywords *critical literacy, environmental education, hip-hop, nature, rap*

New World Water make the tide rise high,
Come inland and make your house go “Bye”
Fools done upset the Old Man River,
Made him carry slave ships and fed him dead nigga

—*Mos Def, New World Water, 1999*

When I first heard Mos Def’s rap, it expanded my notion of how water moves through our environment. In his song “New World Water,” he presents the world’s fresh water crisis, weaving together themes of ecology and racial injustice. With linguistic tools such as personification he transforms water from its chemical composition of H₂O to an entity rich in social and political history. Mos Def references “Old Man River,” the moniker given to the Mississippi River by African American slave communities, to describe the site where overstuffed slave ships were ferried and countless dead slaves were rolled overboard. In our environmental textbook “water

pollution” means a certain concentration of heavy metals like lead or mercury, but could the dead slaves in the riverbed also “pollute”? Is there a kind of dirty water that no Brita can filter out? Through this rap, elements like water are inextricably embedded in struggles for social justice and challenge us to rethink how we define and teach the water cycle. As Mos Def warns later in the song, “*tell your crew to use the H₂ in wise amounts, cuz it’s the new world water and every drop counts.*” These words were penned in 1999 and today, a full decade later, educators, activists, and politicians are recognizing fresh water pollution as one of the most pressing environmental issues of our time.

Environmental education studies have recognized the urban landscape as an underutilized resource for teaching (Barnett et al., 2006), but I argue that the urban cultural landscape is also an area that can help improve relevance and engagement with environmental content. Hip-hop tracks like “New World Water” that deal with environmental themes, which I call “green hip-hop,” are part of this urban cultural landscape and they help break down stereotypes that hip-hop is only about glorifying materialism, drugs, violence, and misogyny. Debra Rosenthal, the author of “Hoods and the Woods: Rap Music as Environmental Literature” (2006), is one of the few who has highlighted the contemporary and historical themes of nature in hip-hop lyrics. In qualifying which hip-hop is environmental she borrows from Lawrence Buell’s book *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture* (1995). The framework asks questions of the text: is the nonhuman environment present in a manner where “human history is implicated in natural history”? And is there an “ethical orientation” to the environment? (Rosenthal, 2006; Buell, 1995). Mos Def may seem an unlikely nature writer, but in the excerpt alone it is clear his stance challenges us to look beyond books for environmental insight.

As an educator working in urban high schools I wanted to put this seldom-discussed environmental literature to work, to bring it into my classroom to help teach environmental issues. As someone with a master’s degree in ecological field science I have tried to find a balance between teaching about nature with the rational and logical language of my schooling and the social, metaphorical, and deeply historical perspective provided by Mos Def. My sometimes rigid notions of what counts as environmental knowledge needed a makeover to incorporate music. Four years of conducting environmental education programs with green hip-hop has helped me reconfigure my standard definitions of ecological literacy.

Incorporating themes of race and social justice via hip-hop into an environmental curriculum is necessary on two fronts: as a way to balance out historical inequalities of who speaks for the environmental movement and to increase student engagement in environmental classrooms. As someone who was immersed in a U.S. environmental movement that has a history of omitting themes like social justice and racial inequality (Taylor, 2000; Bullard, 1993), it was no surprise to me that I had not heard of Mos Def’s racially charged words about nature. Tensions between the more working-class and racially diverse movement called Environmental Justice and the mainstream environmental movement have led to an ongoing debate about the neglect of racial disparities in environmental health and the differential burden of environmental pollution (Cable, Mix, & Hastings, 2005). Recognizing the largely white and affluent membership of the mainstream movement, Van Jones, a renowned African American environmental and civil rights leader asks how can we “make the environmental movement less white?” (Jones, 2007). Jones is well known for intentionally restoring and amplifying the environmental voice coming from urban communities of color. Even with the rise of this race-environment dialogue, I felt like my

classroom had become a microcosm of the dominant movement, where a mostly white, natural science-educated set of authors were the only voices the students were hearing in their texts; green hip-hop could help me balance this bias and speak to my students with engaging and creative language.

There are cultural and ecological mismatches in how we as urban environmental educators present topics about nature. Similar to Paul (2000) who writes of a *cultural asynchrony* between standard educational texts and the forms of knowledge embedded in hip-hop, I was seeing an *ecological asynchrony* where I was asked to teach the ecology of lakes, forests, and rivers when this had no connection to the environmental experience of my urban students. As a continuation of the black oral tradition, the voice of hip-hop is often delegitimized in academic circles. By proxy, many scientifically trained environmental educators have a parallel misunderstanding of the authentic voice of hip-hop and its potential as a pedagogical resource. Restoring this marginalized voice via Mos Def was a critical step to balance the asynchronies and engage my students in environmental education. This was particularly important given that science education has proven to be an area where some of the most glaring racial gaps persist (Barton & Osborne, 1998), including the science-laden environmental elective course offered in my school system.

This work builds from recent scholarship that demands a stronger blending of social justice and environmental education. Borrowing from the environmental justice and critical-race perspectives, Furman and Gruenewald (2004) refer to this hybrid educational effort as an “ecojustice” education, one that does not emphasize wilderness and green consumerism at the expense of race, class, and gender issues. They devise a “Critical Ecological Challenge” to call for projects that address environmental and social issues. As they put it, “critical ecological educators posit that an ecological crisis necessitates the transformation of education and a corresponding alignment of cultural patterns with the sustaining capacities of natural systems” (Furman & Gruenewald, 2004, p. 5).

The challenge stands, yet there are still few tangible examples from urban schools working with black and Latino youth that demonstrate how to bridge the social and environmental. Adding hip-hop to my environmental curriculum, in classrooms that were more than 90% students of color, would give one such example and allow me to add a more applied literacy dimension to the critical ecological challenge: one where we interrogate both what we read and how we write.

This project moves beyond just reading rap lyrics about nature. As legendary hip-hop artist KRS-One (short for Knowledge-Reigns-Supreme) notes in his definition of hip-hop in the song “Hip-Hop Lives,” “*you can’t just observe a hop, you gotta hop up and do it!*” Hip-hop as a culture can be understood by its constituent elements of rap, graffiti, break-dancing and deejaying (working the turntables), although in mainstream culture rap is most prevalent (Rose, 1994). Urban educators have long touted the role of rap in accessing different forms of knowledge (Morell & Duncan-Andrade, 2002; Paul, 2000), and I wondered how this alternative form of composition would work in my environmental classroom. Like Mos Def’s breakdown of the water cycle, I felt it was important that students understand how to not only interpret but actively reconfigure environmental knowledge into their own forms of writing. Extending the critical ecological challenge to my students, I asked them to show me what they knew about ecology but to do so in their own creative style, in their language, becoming green hip-hop authors themselves. Could they transform the language and concepts of environmental science into personally meaningful, creative verse?

The two week-long curriculum I used involved swapping out the standard case studies of lakes and forests to focus on urban environmental injustices and listening to green hip-hop. Like other curriculum initiatives in public schools, I had to build lessons that were tethered to state-mandated concepts, and student classwork needed to address these concepts. Specifically, I sought to teach the conservation of matter law (that matter cannot be created or destroyed but rather moves in cycles) and the many concepts and relationships associated with the food web. This meant contextualizing these concepts in struggles for environmental justice, where race and social class were the stratifying variables. For example, to learn the food web, instead of using the classic apolitical textbook cases of woodland animals, we looked at a 1970s case in which a wealthy corporation knowingly dumped tons of mercury, a human neurotoxin, into a bay where an indigenous fishing village subsisted in Minamata, Japan. The mercury biomagnified as it moved up the food web and poisoned the people, so we studied a food web in the context of ecotoxicology where humans, and notably marginalized humans, were affected. In more local cases, we looked at real data correlating the percentage of non-white citizens living adjacent to vacant lots and brownfields, noting how pollutants such as lead linger long after the polluting activities and its impact on human health. These real cases enabled us to also learn about community organizations that take action to alleviate these problems, building connections between science content and urban environmental activism.

Typically, we spend time reading and discussing each case study, learning the standards-based science behind the story and then follow this by listening to a relevant song with the lyrics printed in front of us. The green hip-hop helped synchronize the cultural and ecological connections of the content, acting as engaging and novel pedagogical tools and sparking the inner-poet of the students. When it came time to evaluate what they had learned the assignment itself was simple: write a creative response to the case studies that incorporates the idea of environmental justice while using the ecological terms and concepts from class:

I watch and stare as the toxins fall down,
 The matter recycled from everyone in town.
 The poor to consume the dirt and the dust,
 mercury and lead poison from the metals that rust.
 The ocean's contaminated and the water we drink,
 will damage the minds of the ones who must think.
 The selfishness of the rich
 to intoxicate our fish
 is indeed profitable but death isn't our wish
 Environmental injustice should be stopped
 Cuz the feelin' of me dyin' leaves my mind distraught.
 This point of view is from me the minority
 striving for environmental equality!

—Candace, 17, *African American*

When I was handed the neatly-written page I read the last two lines over and over. Like Mos Def's rarely heard environmental words, Candace recognized how vital her voice was as an environmental author of color. Growing up in a working-class community of color with pervasive industrial

pollution, she placed her own identity into her lyrics while simultaneously demonstrating an understanding of environmental justice and the law of conservation of matter. Candace's words are authentic because she effectively bridged ecological language to her own verbal style and wove these into a narrative about social injustice. Her verse showed me how using the literacy and style of hip-hop motivated and enabled her to address complex themes of social and environmental justice, and how this format could be used to assess her learning and understanding.

CRITICAL ECOLOGICAL LITERACY: A WORKING DEFINITION

Similar to Candace's piece that I shared above, Elizabeth chose to display her knowledge of the law of conservation of matter.

Is pollution a solution?
Or is it just a build up
of more than paper and trash?
Because what matters is that matter
doesn't disappear,
it goes away, but where?
To a place where they struggle
to earn just a few dollars a day
While killing themselves
Where's the justice?
Toxins like lead and mercury
creep into their bodies,
like a thief in the night.
Big corporations 'bout to earn money
No matter if they wrong or White.
Too weak to fight, the poor die
while getting poorer
The rich ignore the horror,
continuing with business as usual.
What's going to happen?
When they take all they can take,
and the cycle of matter is one you can't break.

—Elizabeth, 16, African American

Just as Mos Def expanded my idea of how water may be tainted, Elizabeth reminded me that pollution is "*more than paper and trash*." The hip-hop style allowed her to break out of the third-person, objective stance typical of ecological science writing, establishing a more ethical and urgent, almost confrontational, relationship with her reader. Expanding from a simple paragraph definition of the law of conservation of matter Elizabeth shows her understanding of the cyclical nature of matter by weaving in personal, economic and social themes, re-centering the environmental conversation to our own actions. The parallel skills of Mos Def, Candace, Elizabeth, and many of the other students suggests the need to blend the social justice and environmental learning outcomes when conceptualizing ecological literacy.

After collecting dozens of creative works from students I began to see a trend I call “critical ecological literacy,” a hybrid of critical literacy and ecological literacy. Critical literacy (CL) is the Freireian idea of promoting learners that know how to read the world, not just the word (Mayo, 1995; Freire, 1970). CL is a way to understand how history, justice, and power intersect with any form of knowledge, but how this works in the context of environmental education has not been fully examined. Anderson & Irvine (1993) define CL as “*learning to read and write as part of the process of becoming conscious of one’s experience as historically constructed within specific power relations*” (Anderson & Irvine, 1993, p. 82). Urban educators using hip-hop note the CL themes in many hip-hop lyrics and use them to guide a more empowering and engaging pedagogy when working with disenfranchised black and Latino youth (Morrell & Duncan-Andrade, 2002), as well as other marginalized populations in many nations where hip-hop proliferates (Spady, Alim, & Meghelli, 2006). Thus, CL in environmental education means choosing readings like green hip-hop and allowing forms of writing like rap that challenge and re-work the accepted system.

Although critical literacy may not be ecologically focused enough, ecological literacy often lacks a critical edge. Ecological literacy (EL), coined by David Orr (1992), can be simply defined as “*understanding human’s place in the environment,*” and it informs many environmental education initiatives. EL is tapped as a guide by practitioners but few have really investigated how it manifests in urban settings where race and culture play a strong role in how content is valued and received. This racial blind spot is made especially evident by the fact that the EL literature has scantily addressed authors similar to Van Jones and green hip-hop in general. Student authors such as Candace and Elizabeth have sharpened the critical edge of their ecological knowledge and illuminated the blind spots in ecological science, as well as my own teaching. As I saw it, this blending of the critical and the ecological was a unique skill and their texts were living examples of the literacy behind their writing.

Today, reading the world and being critically-literate means understanding how large scale trends like global climate change and environmental degradation are affecting different marginalized groups and then communicating this in a style that is relevant and meaningful to those most affected. Critical Ecological Literacy (CEL) is an ecologically focused form of critical literacy which demands that we equip our public school educators with a style of teaching and learning objectives that will produce citizens able to confront ecological crises. I use the following definition of CEL to guide my students’ learning and my own teaching practice: *Critical Ecological Literacy is the process of using reading and writing to create messages that question, confront, and reconfigure how environmental problems are constructed by one’s own overlapping racial, cultural, and economic power relations.*

ELEMENTS OF CRITICAL ECOLOGICAL LITERACY

After teaching this curriculum eight times in different schools over a four-year period I collected over 200 creative pieces. Several structuring elements of Critical Ecological Literacy (CEL) emerged across these student-produced lyrics. My anecdotal observation is that the students who most strongly integrated these elements in their writing also performed at a higher level on more traditional methods of evaluating knowledge such as essay and multiple choice exams. These

elements of CEL can be used as a guide for evaluating student work but can also be a rubric for assessing the educator's teaching materials.

Native Language

Students writing in their familiar style of speech allowed them to take their reactions to the case studies in new ways.

Smell from the toxins got kids feelin' ill
 Pollution killed my cousin so now I know it's real
 There was a time back then when I ain't really care
 'til I realized this was affecting my peers
 I wonder why it be like this
 Once a beautiful town
 hate to see it like this
 Heard some beautiful sounds from all the birds chirping
 so much pollution got our mother's chest hurting.
 Man this ain't working
 They keep beating on momz
 and they stay on drugs
 cuz they dropping them bombs
 Now we patiently wait for her overdose
 Man I feel she close
 Hurricane Katrina tried to send a note
 and them storms getting worse.
 So I pray hoping that mother Earth don't feel the hurt

David, 17, African American

Rather than correcting the “*ain't really care*” or “*this ain't working*” it is vital to see this style of language as an enabler or conduit to the student expressing deeper levels of analysis. Alim (2004) has described how African American Vernacular English (AAVE) has shifted into what can be called a hip-hop nation language (HHNL) that is used by many urban black and Latino youth. Students used the assignment of composing their own green hip-hop as a venue to switch into their more comfortable style of speech. There is power, history, and relevance in the linguistic mode Mos Def used in his phrase “*Fools done upset the Old Man River*” and just as I would not correct his grammar I would not censor students' attempts at expression. As Alim (2004) and others have warned, educators working in urban schools must be conscious to not silence the language of the multiple speech communities that comprise many inner-city classrooms. To this end, I also accepted raps written in other languages such as Puerto Rican Spanish and Cape Verdean Creole.

Another linguistic tool that emerged and can be seen in David's lyrics was personification. To describe the impact of pollution he wrote that it “got our mother's chest hurting,” evoking the idea of “Mother Earth” that is not used in ecological science texts where the Earth is typically referred to as an ecosystem, planet or habitat. Like Mos Def's original use of “Old Man River” this human metaphor enables pathways to new relationships and connections, blending the environmental and social. The goal for the educator is to see how student authors reconfigure the concepts in new and exciting ways rather than look for one standard definition. Obed Norman, author

of “Marginalized Discourses and Scientific Literacy” (1998), points out that the monopolizing effect of scientific language may obfuscate deeper connections to environmental issues. What if, as Elizabeth reminded us in the poem cited in the previous section, pollution is “*a buildup of more than just paper and trash*”?

Ecology of Ideas

I think it's a disgrace
 How waste is dumped in the face
 of people because of their economic status or race.
 I wonder how the world feels
 because of the harm caused by brownfields.
 Some benefit from richness
 while others constantly suffer from poverty sickness
 We need major remediation;
 sacrifice some time to clean up this nation.
 Apologies from rich companies are all the same,
 no matter what they're still disturbing the food chain.

Devon, 16, Antiguan American

Ecology is at its core about interconnectedness. The Massachusetts curriculum standards reduce ecology down to cycles of matter and flows of energy, the food web and so forth, but full interconnectedness recognizes how social, economic, and political issues are intertwined with environmental concerns. This student, a 16-year-old Antiguan and a first-generation immigrant, adeptly blends the cycling of matter and the food chain with ideas of race and poverty. When reading my students' works I always look to see if they incorporate more than one discipline and if their questions and challenges to the reader demand action in more than one area. Do they tend to see the environment as an abstract concept or do they show that it is a concept they intertwine with their personal, social, economic and political experience?

Role Playing and Empathy

Students often adopted the role of the marginalized people they learned about in our case studies, even when this was not a requirement of the assignment. Angela, in the example below, took the role of an underpaid worker at the downstream end of the electronic waste (E-waste) trade, a documented injustice in which developed nations like the United States send toxic and obsolete electronics to developing nations who employ ecologically harmful recycling methods.

What's the point anymore?
 We work only to die, I get paid but what for?
 E-waste in the air ain't helping me out here
 Breathing in the fumes
 Pollution everywhere
 I hate living like this . . . where's the justice in it all?
 America uses the products we take it and destroy it.
 Now you think you had it tough try sitting here . . .

Angela, 14, Puerto Rican American

Role changing and empathy are important elements in expanding one's worldview and adopting a critical ecological stance. The switching of voice is an orientation and ethically embedded skill that is often undernurtured and undervalued in science classrooms.

Living Places and Experiences

Another trend in my students' work is how they connect the case studies to other real-world events, including in their own neighborhood.

Garbage and carbon dioxide in the environment
Towns like Roxbury known for its high asthma rate
Caused by the pollution and unhealthy air quality
Places where the lower class black people reside
Gotta hold they nose 'cause of the trash dumped by their sides
Don't got enough money to make it a healthy and clean place to stay
Hoping maybe the government will pay attention and come to their aid

Nina, 18, African American

When students independently identify places and events that were not discussed in class, this demonstrates skilled use of knowledge, confidence in interpretation, and authentic learning of environmental issues. As I have stated, much of ecological science relies on textbooks using lakes and forests, drawing directly from places where few urban students have experience. Rather than using these abstract or "dead" cases, when devising my teaching materials I incorporated places and contexts that are relevant to urban youth, and feature stories of injustice. This enabled the students to do the same.

Empowerment

I define empowered writing as critical thinking without fatalism; it is a necessary part of CEL within an environmental discipline that is infamous for apocalyptic messaging. Some of the student narratives did profess a doomsday attitude but there were also strong calls to action. Aspects of empowered writing include a localization of the self as a responsible agent in ecological degradation.

Blind-folded eyes we are destroying our nation
Making stupid choices we are all in the wrong.
Breathing in toxins we aren't gonna live long
Oblivious to the warnings that were continuously seen and said
Climbing up the food web
We're all gonna be dead.
Starting off our days with a moment of silence
Guess what all these deaths is not just caused by violence.

Lisa, 16, Somali American

The above piece is notable because Lisa was able to extend her focus on immediate injustice to the systematic and structural injustices related to environmental problems. Furthermore, she

was able to connect her own frame of injustice, gang violence, and extend it to an ecological perspective.

Another part of empowerment is a call-to-action, heeding KRS-One's call to move beyond words:

Like mercury and lead
it's affecting my learning and invading my head!
We need more trees and oxygen too,
What are we going to do?
They remove all this trash,
but where does it go?
I asked other people, but they don't know.
Something has to change
And we can make it happen
Why don't you recycle instead of all that rapping!!

Audrey, 18, African American

Words like Audrey's continually remind me that to embody the ethos of hip-hop, the created lyrics need to include or imply a call to action. The CEL strategy helps move social consciousness to a boil, as Paulo Freire noted, preparing citizens to implicate themselves in a power matrix so that they may begin to act.

Last, a young man connects his verbal talents with a necessary change amidst a rapidly shifting urban landscape.

Now the rents goin' up,
this gentrified hood got homes being redeveloped.
Now we outta luck
Nowhere to go
but I can make a change you see I got a crazy flow
If you work for a change than your work might grow!

Bernard, 17, African American

The young man connected his creative words, his Flow, with working to change his environment. Flow is the essence of critical performance in hip-hop culture and by channeling their flow to treat environmental themes the students connected their critical and ecological worlds.

CONCLUSION: SHARING CRITICAL ECOLOGICAL LITERACY

Despite a decade of green hip-hop tracks like Mos Def's "New World Water," few have recognized their potential as a curriculum resource to motivate, inform and assess student learning. I began by expressing the tension between my scientifically-trained environmental worldview with that embedded in hip-hop but I have learned that they are not mutually exclusive, they can be blended. My shift in perspective where I now see the complex but empowering role hip-hop can play in education for environmental sustainability is similar to my students who started off disengaged with environmental science but became outspoken environmentalists through creative expression. This intervention in environmental education helps amplify the voice less

heard, showing that the skills of weaving social and environmental themes are not Mos Def's alone.

The final point about the CEL strategy is that when student-produced texts are refined they can become teaching materials for other students. I closed the learning loop by sharing these freshly-harvested green hip-hop lyrics with other students growing up in similar neighborhoods. The shared lyrics served to prepare and motivate students to write deep and powerful pieces of their own. One student who read the work of others before creating his own piece wrote, "My response to environmental injustice was inspired by other students who've creatively come up with a response with the similar style. I think that my response could teach others to think strongly about where our world is going and what the future holds for it if we continue to just let it go to waste."

This student-to-student transmission of environmental knowledge is a crucial step in mitigating the potentially problematic role of cultural insensitivity in environmental education, and one that allows texts to grow organically. It also mirrors the natural proliferation of hip-hop among the marginalized populations of other nations regardless of race (Spady et al., 2006). When students hear how their peers have connected environmental and social issues using real places and events in their community history, relevance and synchrony, both cultural and ecological are heightened in the classroom. The culture of hip-hop, at its ethos, is about connecting people to their history through creative remixing of standard ideas so they can be inspired to take informed action. The examples offered here show that environmental educators, even if they are not rappers, can work with rather than against this cultural force.

Mos Def's lyrics sparked a shift in my ecologically-trained perspective, and the voices I cultivated in my classroom have taught me even more. Ultimately, CEL is about adding more than one rhythm to the classroom; hip-hop, folk, soul, whatever the teacher is comfortable with, and seeing if learners can critically reconfigure this and meld it with their own style. By remixing our voice and perspective with that of our students, and sharing this with as many people as possible, we are fostering a more inclusive form of education about nature and society and challenging others to do the same.

REFERENCES

- Alim, H. S. (2004). *You know my steez: An ethnographic and sociolinguistic study of styleshifting in a black American speech community*. Durham, NC: Duke University Press
- Anderson, G. I., & Irvine, P. (1993). Informing critical literacy with ethnography. In C. Lankshear & P. L. McLaren (Eds.), *Critical literacy: Politics, praxis, and the postmodern* (pp. 81–104). Albany, NY: SUNY Press.
- Barnett, M., Lord, C., Strauss, E., Rosca, C., Langford, H., Chavez, D., & Deni, L. (2006). Using the urban environment to engage youths in urban ecology field studies. *The Journal of Environmental Education*, 37(2), 3–11.
- Barton, A. C., & Osborne, M. D. (1998). Marginalized discourses and pedagogies: Constructively confronting science for all. *Journal of Research in Science Teaching*, 35, 339–340.
- Buell, L. (1995). *The environmental imagination: Thoreau, nature writing, and the formation of American culture*. Cambridge, MA: Harvard University Press.
- Bullard, B. (Ed.). (1993). *Confronting environmental racism: Voices from the grassroots*. Cambridge, MA: South End Press.
- Cable, S., Mix, T., & Hastings, D. (2005). Mission impossible? Environmental justice activists' collaborations with professional environmentalists and with academics. In D. N. Pellow & R. J. Brulle (Eds.), *Power, justice, and the environment* (pp. 55–76). Cambridge, MA: The MIT Press.

- Furman, G. C., & Gruenewald, D. A. (2004). Expanding the landscape of social justice: A critical ecological analysis. *Educational Administration Quarterly*, 40, 47–76.
- Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: The Seabury Press.
- Jones, V. (2007). *The new environmentalists: How to make the green movement less white*. Retrieved from <http://www.alternet.org/environment/58613/>
- KRS-One. (2005). "Hip-hop lives." On *Hip-Hop Lives* [Audio CD]. New York, NY: Koch Records.
- Mayo, P. (1995). Critical literacy and emancipatory politics: The work of Paulo Freire. *International Journal of Educational Development*, 15, 363–379.
- Morrell, E., & Duncan-Andrade, M. R. (2002). Promoting academic literacy with urban youth through engaging hip-hop culture. *The English Journal*, 91, 88–92.
- Mos Def. (1999). "New world water." On *Black on Both Sides* [Audio CD]. New York, NY: Rawkus/Priority/EMI Records.
- Norman, O. (1998). Marginalized discourses and scientific literacy. *Journal of Research in Science Teaching*, 35, 365–374.
- Orr, D. (1992) *Ecological literacy: Education and the transition to a postmodern world*. Albany, NY: State University of New York Press.
- Paul, D. G. (2000). Rap and orality: Critical media literacy, pedagogy, and cultural synchronization. *Journal of Adolescent & Adult Literacy*, 44, 246–251.
- Rose, T. (1994). *Black noise: Rap music and black culture in contemporary America*. Hanover, CT: Wesleyan University Press.
- Rosenthal, D. J. (2006). Hoods and the woods: Rap music as environmental literature. *The Journal of Popular Culture*, 31, 661–676.
- Spady, J. G., Alim, H. S., & Meghelli, S. (2006). *Tha global cipa: hip hop culture and consciousness*. Philadelphia, PA: Black History Museum Press.
- Taylor, D. (2000). The rise of the environmental justice paradigm. *American Behavioral Scientist*, 43, 508–580.