

**Seventh Annual Regional Sustainable Development Forum:
Being a Part of the Climate Change Solution:
Individual Action for Collective Impact**

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Session 4: Sustainability Education

Presenters:

Steve Lanou, Deputy Director of Environmental Sustainability, MIT

Madeleine Steczynski, Co-Founder and Executive Director, ZUMIX

Dr. Ricky Stern, Founder and Executive Director, “e”

Moderator:

Lauren Baumann, Senior Associate, New Ecology, Inc.

Lauren Baumann:

Welcome and thanks for coming. Lots of folks in the audience with experience in sustainability education. I hope for this to be a very interactive session. (Introductions of the three panelists).

Ricky Stern:

We are going to present an idea of sustainability education across ages. We all have different aspects and tasks to our engagement with young people. But what we all have in common is the sense that youth have a role to play, from the smallest person to the college student, in moving a lot of issues forward [the issues of environmentalism, conservation and sustainability]. Obviously sustainability is a huge task. We are interested in working with kids and talking to kids, on what we consider to be the “true” environmentalism.

[Dr. Stern notes that her work with young people is toward “true environmental issues”. She contrasts this term with what she called the “chicken little,” or the “sky is falling” presentation]. Some people worry that a presentation of such dire environmental issues will upset kids. A discussion of what’s wrong doesn’t have to be scary. People naturally want to be useful, and what’s really scary is when people don’t know what to do, or what action to take. So what’s important is to tell kids what they can do, how they can make a difference. It is a matter of how it is presented, and not hiding the truth about the fact that the earth is in dire trouble.

Action of any sort is an adventure. The idea that kids can actually do something, can get out there and engage with something in an important way, is a very exciting idea.

It can be especially important to engage teens. As they’re growing up, they’re thinking “where am I going?” It’s our job to point them to green jobs, teach them about the issues, make sure kids get in there early and get these jobs.

As a student of evolutionary biology, I have had the privilege to think about our closest evolutionary relative – the Chimpanzee. The idea behind “e” comes from not wanting to live in a world where humans are the only creatures left. We have to work to protect our animal relatives. Chimpanzees are very emotional creatures. Really busy, involved, and reactive. Leadership is a huge thing for with chimps: if the leader is upset, everybody knows about it. I think we have inherited these traits. We can be forces for good or for ill. I remember President Kennedy announcing the creation of the Peace Corps, and five years later everyone knew someone joining the Peace Corps to try and do some good. And then we get Ronald Reagan, and everybody just goes and gets credit cards.

People can be heroes, in their own small way. An 11 year old made it ok for restaurants to keep their food, as opposed to dump it, and now all that food is going to homeless shelters instead of into dumpsters.

For “e” the idea that you can inspire people is a huge motivator.

Is it possible to create an environmental citizen, and what would be a good model for that?

What I see us as doing is having a hypothesis. Our hypothesis is: if you pair the understanding of how the earth works (teach them the science, and they have an “aha” thing) can you pair this with a curriculum, to cause the students to have a change of heart, and get them understanding what they need to do, and doing it [i.e. changing their behavior for better environmental outcomes]?

Behavioral change is tough. [R tells anecdote of keeping reusable grocery bags in trunk of her car and always forgetting to use them].

It is important to link knowledge to action and to the ability to make change. Science is painted as something dull, but the exploratory nature of science, putting our hands on things, throwing out a hypothesis: kids get excited. Science can be dry, but kids get excited if you can meet them where they are in terms of where their needs are for knowledge. Put them in a situation, and don’t say “do”, but take them through a process: that’s what we are involved in. It’s the business of inspiration.

We know that if our children can more confidently manipulate ideas, can get their hands on experiments, can try collecting data, and draw their own conclusions, that we can get them excited about science and knowledge and making change.

Kids have been warned off academics. The idea is that there is failure built up around academics. It’s going to make people feel bad or non-capable. A sense among kids that they are not interested. Our job is to get them excited by what we do. If our kids can more confidently manipulate ideas, get their hands on experiments, can try collecting data, and can draw and test their own hypotheses, they will be inspired to act.

We do lots of work with after-school programs. There is some flexibility there. We don’t get to take kids out to places all that often. We are not a nature organization, per se, and yet it is amazingly fun to dream up stuff to make kids feel like they are scientists. We make up “experiments”. How do you simulate living 150 feet above the earth? What is it like to be a monkey, with highways up there in the canopy? It’s a simulation. They’re taking data, on their fish [in a tank in the classroom], but they are learning about territory,

using data and drawing conclusions. This piece of what we do is this hands-on scientific work, in the classroom.

But the biggest part of what we do is this action part. And it is the hardest part of what we do. It is getting the people that work with the kids, to get into this. Over the years, we just kept trying things and trying things, and pushing the envelope. You really have to support people through action. We have a lot of frustration sometimes, but that is not always fair.

I went to the Asia display at the Bronx zoo. In the last room before you walk out are two dioramas, showing loggers cutting down the rainforest. And a woman walks through, asks “why do they have to do this? It’s so depressing.” And I am like, “come on”. But you know what, she’s actually right. If you see something that you love, and it is in trouble, and you are far away, and your only option is writing a check, I mean, what do you do? You need to get people in action networks, with steps and people around them, and make it possible for them to make a difference.

[A brief discussion of “e” curriculum follows:] 4 curricula: ocean explorers, roaming the Amazon rainforest, how to be cool about getting hot (global warming), and nature in your community. [Also a project to promote sustainability within the school building]. If you send kids out and say “do something”. It will never happen. But if you do it right there in the building, and put lots of pressure on the staff, something can get done.

Activities that students do –

- Adopt trees in a parking lot
- Protect storm drains
- Adopt classroom and monitor energy use
- Create meat free days in their school – related to rainforest deforestation
- 3-D museum exhibit
- Bottle and recycling programs
- Create posters about watching what fish each student consumes at home
- Make fossil fuel free days in their school

What do the kids do? We guide them and let them know that there is 5 minutes of an activity for everyday. First science stuff, and then action stuff. They are responsible, after it is done, to keep the project running all year, and they are then invited to the climate protectors’ conference at the end of the year. We make sure that the kids know about the party, to use the kids to keep the pressure on the adults.

Everything that we do has to result in action.

Children are a catalyst for change on as many levels as you can think of. You are inculcating them with a set of ideas that they will carry on. They are also a catalyst for change, because when they get upset, adults get upset. [R tells anecdote of a Jewish friend’s child who convinced her parents to keep kosher]. If kids want to do something, so many teachers will go along with it. Kids are inspirational and they can be inspired. Kids jump in. Seeing kids get excited about doing something, and then do it, is really neat. It’s about the fun of working with/for them. But they are also an amazing pressure point for change. That has a lot to do with creating a whole cadre for change and sustainability.

Through these efforts we have attempted to change the way that kids and adults understand their world, and see new possibilities for action.

Madeleine Steczynski:

Hi everybody. I'm the founder and director of an organization called Zumix, in East Boston. We are doing a green development project, but this is not our expertise. I'm going to tell you a bit about our organization, and about our project, and a little about what one has to do with the other.

In 1990 Boston had its worst violence ever. 152 homicides. I was an office manager at an architecture firm in Cambridge at the time. I felt guilty and powerless, because everyday another young person in Boston was being killed. In my own city, on my own block, these terrible things were happening and nothing was doing anything about it.

[M presents a quick demographic characterization of E. Boston]: Lots of kids, low education, no music, but lots of great sports programs. No art programs, non-athlete kids had no services for them. My idea was simple, to mobilize my group of friends to put guitars into kids' hands, so that there would be no reason for them to pick up guns. We posted flyers, did talent shows and auditions. The first time, one kid showed up. But that summer of 1991 we recruited 24 kids. That summer, a kid was shot, and the community rallied around our organization and supported us and our mission.

1991 was our first year. In 1994 we formed a partnership with Berkley College of Music. In 1996 we moved into a new building, serving 100 kids/year. And we were invited by the Pew charitable trust to start educating kids about sustainability. In 2005 we chose to move into another new building, now serving 300 kids, with 300 waiting. We would redevelop an old fire station building, allowing us to increase enrollment to 450, and expand our connections to the community.

Why build green? We were very lucky to have a great partnership with the E. Boston Redevelopment Association. Madeleine Fraser Cook [from NEI] joined our board several years ago, and from the start was educating us about why green buildings are so fabulous. So, why develop green? Green buildings are better designed and built, happier, healthier, cheaper to operate, the list goes on.

So we got talking to our kids about what they wanted to see [in/for the building], what would be good ideas, bad ideas. So our kids have been involved from the get-go.

We came up with a \$4.2 million capital budget that we needed to raise for the project. Raising the money was about doing it yourself. We really believed that we could do it ourselves, regardless of what other people were saying, or if they didn't agree with it. We've raised half the money so far, which is amazing.

MHIC tax credits may contribute \$1.3 million to the project. Even if they give us all that money, we still have to raise \$800,000.

[Now presenting pictures of their current facilities:] It's scrappy, but that's the beginning of our radio station. That's our songwriting class, our radio class. We teach live sound, instrumental lessons, and more.

[M introduces a child-member of Zumix:] Ismael, he's going to talk to you about our project [the new green building], and the design process.

I: at the beginning of our design projects, we decided to get youth involved, as Zumix is a youth organization. [I presents the design, and quickly runs through a number of the

aspects of the building's design, including: reusable building materials, lighting, elements of color, signage in the community, acoustics, space for instrument storage].

Zumix has become renowned as a place where kids can come after school and hang out before going home to do their homework. But we have drab furnishings, now. So a part of it was just new, better furnishings.

In the old design, when kids entered the building to go to lessons, they had to cross through the performance area and interrupt anything that was going on in there. We made a new design for the entrance so people heading to lessons don't have to interrupt performances, but we also wanted to keep some level of interaction between kids entering the building and the performances that might be going on. So we created a little hallway where people entering can still see what's going on in the performance area without interrupting it. This was important so the kids going to lessons can be inspired by the thought of having a performance one day.

M: Because we are a youth organization, safety and image are also important concerns. We went to visit artists for humanity, to Berkely, to the Christian science center, looking at acoustics and other things (light). We're balancing all these things [against cost], but the green development stuff is always at the top. We've applied to be a LEED silver building.

Steve Lanou:

[Presentation opens with a title slide: "Engaging students in campus greening: local action, leadership, global change"]

Ismael told me "you know, this is the 2nd presentation I've done at MIT this year.' Thank you everybody for coming. I work in the administration. My work is to promote MIT moving in a good direction with their environmental practices. What commonalities can I find (in my work with rocket scientists) with Ricky and Madeleine in theirs? And they reminded me clearly about just what these things are. What they pointed out is: can you create environmental citizens? Yes. And can you enable environmental citizens? Yes.

My job and passion is to enable these people, especially in the students. Give students and kids the facts. Give them data, give them science. Propose a challenge, based on these facts: "This is where we are, this is where we need to be. How do we get there?" This inspires students to get involved, and to provide solutions. Really in a nutshell that is it: Facts, a challenge, and provide a way for them to get engaged with it.

MIT is making energy and climate change a focal point of their work. Can't we demonstrate the practices that reflect the research and learning in our labs? "Walking the Talk": Demonstrate these ideas and concepts on campus.

This place is like a city. We have 130 academic buildings, 11.5 million sq. ft. of academic space. We've got 20,000 people living, working and studying here. MIT spends more than \$1million/week on energy costs alone.

We proposed some challenges to the students, around their own impacts. Energy, water, etc. One activity that has been a great springboard for action on campus, has been the inventory on greenhouse gas emissions for the whole campus. [Slide shows energy use trending up, also displays that 90% of energy use is from buildings, 9.5% from

transportation, .5% from solid waste]. This is a part of the “facts”. What are we going to do about it? “This is where we are today, this is where we will be”. Ok, how are you going to start changing that growth? [These statements refer to a way of getting students to engage with energy issues by presenting them with the facts of MIT’s energy use]. There are various ways to change those emissions over time. Energy conservation on campus is going to be a big part of it. It’s not particularly interesting, or sexy, but the students do get into this and work on it.

We’ve got lots of different avenues for students to engage with sustainability. Research, volunteer projects, in the classroom, leadership opportunities with other students and the administration. And what happens in the end is you’ve got these students driving this effort. The students are pushing us to do more.

Avenues: Formal educational channels, “informal” channels: volunteer groups, projects, clubs, initiatives, etc.

We’ve got these faculty, these students, let’s try some new things, new approaches, and see if we can be a model for what we want to see.

With climate change there has been an explosion of will and interest in getting involved. There are great classes, and we have components in classes that are project based and work for change on campus, or in the local community.

Sloan [the School of Business Management at MIT] did some financial metrics around this stuff, and helped make some money materialize around MIT investment and efforts in sustainability.

We have a module in freshman orientation. We introduce freshmen to research and volunteer opportunities. We propose a challenge to inventory utility use in a dorm. A lot of these kids had never done anything around energy.

80% of undergrads do research projects in a lab. Why don’t we get into this, bring the focus back to campus issues? That’s a new sort of partnership, leveraging our students and faculty for sustainability.

Another terrific grassroots mechanism has been the MIT Generator. These students got involved, and came up with a new way of organizing for people to do things. An institute-wide meeting, about 100 students or so, where students learned and were challenged about MIT’s position [on energy/environmental issues] and where things are. Provide the facts, the inspiration, and the challenge. And people brought projects up to an open microphone, pitched their project, and at the end of the pitches, students join onto these projects, develop a plan, and in this way develop workable sets of projects. It spawned a whole set of self-sustaining projects. Groups share their info, and work together, and recruit new students and projects each semester. But for me, I don’t manage each project, I don’t come up with them; the students come up with them and they sustain themselves.

Not only are students looking to do what they can on campus, but to extend that after their time on campus. So there is an after-graduation pledge. Students have created a community around this pledge effort. There is a national effort to support it. And it is a great way for students to hang onto these concepts, even if they don’t go work in these issues. [<http://sustainability.mit.edu/pledge>: “I pledge to explore and take into account the social and environmental consequences of any job I consider and will try to improve these aspects for any organization I work with.”]

We've begun to see a multiplier effect, of students picking up these skills and tools, and then taking them away with them beyond MIT.

Q& A:

Q: You talked about the master spreadsheet with the ROI [return on investment, presented briefly in the discussion of Sloan School efforts to evaluate the cost-effectiveness of certain sustainability programs], and I'm thinking that's a great tool. Can you tell us how you put it together? Is it available for other institutions?

S: It is a great tool. It is institution-dependent. I could share the student report that really outlined the methodology and where the data came from. What we did as an institution was look at those numbers in greater detail, and base our decisions on those.

Q: The largest ROI numbers were listed under "commissioning" Can you tell us what commissioning is?

S: Commissioning. Take an existing building, look at all of the systems, and make sure that it is all functioning as it was manufactured to do. Systems are often not installed correctly, or operated correctly. Fans are often working against one another, heating and cooling at the same time. So there is new commissioning for new buildings, to make sure that it is all going to work like it is supposed to. And there is retro-commissioning, to check older buildings. What we found is, it's not new or sexy, but it's where your biggest bang for your buck is. And it's the easiest thing to sell to your VP for finance.

M: It's also the thing we've been warned most about in our project. You might pay a lot of money to this great system, and if your contractor installs it wrong, it's worthless. It gives me nightmares.

S: Continuous commissioning is doing this all of the time, make sure your building is functioning all of the time.

R: thinking about kids, we get the kids involved in an energy audit of their school building. And then you put them into a process where they monitor the electrics of the building. And the electrical use starts to go down. It's amazing what it actually can do.

Q: Is there any effort towards the food realm? That's a hole in the education thing. To use carrots and parsnips [which are in season] rather than lettuce right now.

S: I don't think there's a single food item on the ROI. We've largely looked at engineering solutions. The opportunity is that we don't run our own food services.

Q: The 25% of people that drive to work alone. That number surprised me. It seems low. Is there any effort on the pricing or policy efforts, to look at the commuter base, and reward or cost the institution based on proximity of the commuter-public? Could the institute salary people better to live locally, and reduce the footprint that way?

S: One of the generator groups is working on just this issue. They made a full-credit class on this parking and transportation issue, and looking at what incentives there are around parking. Parking used to be cheap, but it has gone way up. If we price parking right, people won't drive. Parking is a major campus planning challenge. They came up with these recommendations around parking, but then also around T-passes.

Being in Cambridge, we have to do a transportation demand management program. We have rideshare, vanpooling, subsidize T-passes, to get people to drive less. There have been a slew of activities on this issue.