

Aka'ula School.

Teachers Vicki Newberry and Dara Lukonen at the Aka'ula School on the island of Molokai in Hawaii have for more than a decade been involved in an effort to engage their upper elementary and middle school students in issues linked to the environmental and social health of their home place. Called Promoting Resolutions with Integrity for a Sustainable Molokai (PRISM), Newberry, Lukonen, and their students have investigated a range of issues including solid waste disposal at their school and on the island, the impact of ecotourism developments on habitat, bilge water releases, the effect of grazing ungulates on native species, the environmental consequences of disposable diapers, and the restoration of traditional Hawaiian fishponds. After choosing a topic, students individually or in teams spend several months gathering data from research reports or resource professionals, making sure that they have identified all of the stakeholders associated with a particular issue. They then strive to fairly represent these different perspectives and values. Once they have established a good understanding of the issue and the potential controversies surrounding it, students then develop an action proposal, half of which are generally enacted. In the spring, students then hold a one- or two-day long symposium during which they present their findings to their fellow students, their families, and interested community members.

Their work on solid waste disposal led to the writing of a bottle bill aimed at encouraging the recycling of glass, metal, and plastic containers that was passed by the Hawaii State Assembly. A few years ago, one team's suggestions for fishpond restoration were so finely crafted that an audience member said he wished he had come to them before paying several thousand dollars to consultants he'd hired to deal with the same issue. Other projects have led to the elimination of polystyrene at the school and the development of a plan at three local businesses to retail alternative products. Student work has also resulted in the donation of 90,000 CFL lightbulbs by the Blue Planet Foundation. These will be distributed for free at seven Molokai schools, potentially leading to energy savings of up to \$18 million over the next 10 years (Molokai News 2010).

In 2010, the theme for the March symposium was "Learn from the Past — Act for the Future." In addition to student presentations, the two-day event included fieldtrips to wetlands, a wastewater treatment plant, a traditional fishpond, and a farm that incorporates sustainable agriculture and energy. During the 2011-2012 academic year, students researched "coastal area issues including mangrove invasion, wetlands, sand erosion, or any issue occurring within the main high tide line and the outer edge reef" (Aka'ula School Newsletter 2011). All of these projects incorporate elements of a process called Investigating and Evaluating Environmental Issues and Actions (Ramsey, Hungerford, & Volk 1989) that requires students to develop research

questions, collect data, make inferences, draw conclusions, offer recommendations, and develop an action plan. In doing so, students model a form of citizen science and decision making that has acquainted adults on the island with a process that is demonstrating how controversial issues can be dealt with in a way that can lead to positive change. In an article published in Yes! Magazine in the fall of 2009, Vicki Newberry described how a student investigation of plans to reintroduce the endangered Hawaiian Nene geese at an ancestral burial ground initially elicited serious concerns on the part of members of the group committed to the reintroduction of these birds. After students' research was presented, one of the people most involved with this project thanked Newberry for what the students accomplished, indicating she had realized that the original site was inappropriate and was looking for alternatives.

Parents have made similar observations about the broader social consequences of PRISM. One mother observed that "other parents I know who have kids in PRISM, it's not only their children who have learned or that have had their eyes opened to what is going on, but it is as if their whole families went through the PRISM process" (Cheak, Volk & Hungerford 2002, 37). Student's engagement with learning and activities can even motivate their parents to become active citizens and stewards. One woman described the shift she saw in her niece's mother:

We would come down and listen to how the research turned out and stuff like that. . . . Her mom—who never got involved in community things—is now one of the Enterprise Community Board and volunteered to be on the waste management project" (in Cheak, Volk, & Hungerford 2002, 3).

A recent conversation with Vicki Newberry (personal communication 2011) suggested that this kind of shift in adult participation in civic and environmental affairs is not as widespread as she would like; at the same time, she acknowledges that her work at the school is contributing to the willingness of some families to invest much more energy in community issues and is certainly making a contribution to the education of both younger and older citizens often disregarded by decisionmakers.

This transformation is especially striking in a community primarily composed of Native Hawaiian and Polynesians who have had to endure the experience of colonized peoples across the planet. PRISM is contributing to the reclamation of their voice in public affairs and in its own small way parallels movements in South America, Australia, New Zealand, and among First Nations peoples in North America to reassert their authority over decisions affecting their communities and land. It is this reassertion of the voices of the marginalized that can be seen in the activities of groups associated with the World Social Forum and its regional spin-offs. PRISM is modeling what educators elsewhere could do to induct young people into a vision of themselves as informed and politically savvy social actors, capable of joining with colleagues in similar communities elsewhere.

The PRISM program at the Aka'ula School on Molokai exemplifies a number of the Education for Sustainability benchmarks. In what follows, I will speak to those that seem appropriate.

With regard to **Big Ideas**, PRISM has consistently led its middle school students to investigate issues that are important to the maintenance of the environmental health of Molokai, issues like solid waste disposal, rangeland management, the protection of coastal wetlands, and the restoration of endangered species. Although students' investigations of these issues focus on their local manifestation, **they learn about how problems in their own community are related to problems in other communities**, as well—something that can be seen in their involvement with the writing and then enactment of Hawaii's bottle bill.

The action component of their work demonstrates their willingness to not only study issues but also take steps to address them. The primary project during the 2016-2017 academic year, for example, focused on the impact on coral reefs of specific chemicals found in the great majority of sunscreen products. Students developed a survey aimed at both collecting information about how much the island residents knew about this issue as well as acquainting them about the problem and steps then being taken in the Hawaii legislature to rectify it. **Time and again, students seek to make a difference with regard to the topics they study.**

Higher Order Thinking characterizes much of the work students must accomplish as they participate in PRISM projects. They need to be able to **compare and contrast the viewpoints of different island stakeholders and evaluate them in terms of their impact on the environment and community**. They need to **question their own findings and assumptions and reflect upon the consequences of different action proposals**. Developing their own action proposals, themselves, requires **creativity and the ability to imagine and design potential solutions based on what they have learned about local conditions and perspectives**.

Since the focus of PRISM is the sharing of presentations at a culminating symposium, the development of *Hands-on Skills* is not always central. On some occasions, however, students do gain practical skills. During the years when PRISM focused on coastal protection or the restoration of traditional Hawaiian fishponds, students engaged in fieldwork that took them beyond the school into wetlands and beaches. The skills that students more frequently develop are related to **academic and social research and their public use: creating surveys, interviewing island residents and natural resource professionals, developing speeches and public presentations, shaping a piece of legislation, understanding and synthesizing complex governmental documents, and writing about what they have learned**.

Many of the sub-categories under the broad benchmark of **Applied Knowledge** are regularly addressed at the Aka'ula School. Teachers were initially motivated to create the PRISM program because of their belief that island residents should have a say in the development of Molokai. **As students learn about different environmental phenomena like bilgewater releases into local harbors or the impact of grazing practices, they encounter relevant scientific laws and principles**. Interviews with resource professionals and the review of public documents demand that they **refine their understanding of these laws and principles in ways less likely to occur when their exposure is limited to reading a textbook and taking a test**.

Because their learning is grounded in the local, students are encouraged to **develop a strong sense of place and to grasp the importance of a healthy commons**. **Seeking out the**

thoughts of diverse stakeholders gives them a chance to investigate multiple perspectives, including the need to think about the intersection of sustainable practices and economic development. Many of the PRISM projects also require students to grapple with systems and cultural change and the way that **they and their families can move forward in a manner that respects local Indigenous traditions but at the same time adapts to new and evolving conditions.**

As indicated above, ***Application and Action*** are central to the PRISM program. **Students are brought into activities that require participation and collaboration. They learn that their voices matter and often have a chance see the difference they can make; in the process, students begin to recognize their own capacity as leaders. The balancing of different community viewpoints and needs inevitably confronts them with what it means to be fair and just,** something evident in teacher Vicki Newberry's observation about the woman involved in efforts to reintroduce Hawaiian Nene geese.

Central to the success of the PRISM program is the way it ***Connects students to their Community.*** The very structure of the program with a symposium aimed at educating adults about issues important to their lives, issues they may not have had the time to investigate, **exemplifies what it means for a school and its community to learn together.** This is probably the primary way that the **school serves as a resource for the community. The community acts as a resource for the school when adults open their offices or homes to student researchers and then listen seriously to what these young citizens have to say at the symposium.** The willingness of some adults to become involved in the community thanks to children's learning activities speaks to the way the PRISM program has become much more than a school project. **It has become a means for the community to reflect on and develop itself.**

Finally, with regard to the development of student ***Dispositions,*** the PRISM program seems ideally designed to result in **curiosity, open-mindedness, perseverance, imagination, and resilience.** Students who have participated in its research projects--grounded as they are on teamwork and in the community--also seem likely to become more **caring, collaborative, empathetic, place and community conscious, respectful, responsible, and self-aware.**