

Learning to Save Our Skin

Paul Berry*

With serious depletion occurring in the stratospheric ozone layer, we face a public health problem that poses an educational challenge as well. How do we teach our children about the hazard and how to respond to it? Although we have the science to demonstrate the problem, changing young people's behavior on a large scale is at best a slow and uncertain process, especially when the behavior involves something most of them perceive as a familiar pleasure and a reward: The Hawaii sun.

The task of teaching others about ozone-depletion and the health hazards of ultraviolet rays was posed to students (grades 10 through 12) in my Earth-at-Risk class at Punahou Academy, and we have spent 9 weeks learning about the problem and developing a variety of ways to educate others about the need to use sunscreen. It is a curious undertaking, for it involves students collaborating with dermatologist Dr. Norman Goldstein, the Sea Grant Program at University of Hawaii, the Cancer Society, the Department of Health, a representative from the Department of Education, and finally teachers throughout our school. In short, this is a different model of education, one aimed at providing others a service that they may not realize they need. The basic premise lies in the assumption that, armed with the right information and a variety of approaches, children may be more credible as public health teachers than adults or authority figures.

As they have learned about ozone depletion, the increase in UV rays and consequent health risks, students have examined their own attitudes in hopes of understanding how other young people might resist what they need to learn. Here are some of the assumptions they have used in developing approaches to teaching others about increased hazards of sun exposure.

1. Once you know the extent of ozone depletion and the increase in UV rays, you have a clear responsibility to teach others. Kids, however, are not always willing to take responsibilities.

2. If you tell people that there is an invisible layer of something overhead that has a hole in it, listeners at first feel puzzled. If you say there is a new hazard in sunlight from rays you can't see, you run a similar risk.

3. Students who don't feel strong in science may tune-out when asked to examine the chemistry of ozone depletion.

4. When the discussion suggests this ozone depletion means that time spent in the sun needs to be altered, the listener's defenses rise and denial is quite normal.

5. While denial is quite powerful, the combination of peer pressure, a positive approach, and testimonials from other young people whom kids admire can move young people of all ages onto the sunscreen bandwagon.

6. The information has to appear in a variety of forms, not all of them academic; TV is a must.

7. Young people are naturally concerned about their appearances and a tan is presently perceived as attractive. Our sunscreen program is working against a youth-culture tradition. On the other hand, a poster showing facial wrinkles caused by exposure to the sun sets off strong reactions among teenagers. Teenage women who are concerned about makeup being disrupted by sunscreen will be more concerned about what wrinkles can do to their appearance.

8. Kids naturally feel immortal and focus on the moment or the near horizon. Talk of cumulative damage to skin, eyes or the immune system will have more impact if it comes from someone they know and trust.

9. We don't know what will get the best results in moving kids to the use of sunscreen, it may vary from student to student.

Because all curricula at Punahou are created by our teachers, we also agreed that the real job lay in getting the full attention of teachers, ie to have them take what we would give or point out to them and find ways to tailor units for their own classes.

After teaching high school for more than a generation, I believe that, regardless of the subject, kids face 2 questions in every class: What is going on here? and, what has it got to do with me? If they feel there is a significant answer available for the second question, they have a lot easier time becoming interested in the first question. In the case of the sunscreen issue, there is also an obvious third question: What can I do to protect myself?

My class discussed possible names for our program and settled on Save Our Skin; the acronym SOS was appealing and looked like a good prospect for an attractive logo. Next, we clarified what we were trying to accomplish. Students of all ages need to learn that: 1. A new danger exists in overexposure to the sun; 2. you may find the environmental causes of the hazard interesting because they are in part man-made, but you need to know the health consequences; 3. you can easily learn how to protect yourself, but it takes a change in attitude about time in the sun.

We are developing a package of materials for all teachers, kindergarten through grade 12. Before disseminating the information widely, however, we need to try the package on a few teachers first to see how useful it is. As we develop our materials, our initial push in elementary school will be through our outdoor education programs in grades 4, 6, and 8; all students in the grade spend anywhere from 3 days to 6 days in nature outdoors and have immediate need for sunscreen information. We also will provide packages to physical education teachers at all levels, and to coaches of outdoor sports, along with sunscreen samples.

We hope to approach high school students through a variety of venues including posters, assemblies with slides and testimonials, and classroom teaching units.

Our goal is to motivate all 3,700 Punahou students to put on sunscreen (SPF 15 at a minimum) after a morning shower or in their homeroom meetings at the beginning of the school

* Teacher at Punahou School

day. To see how effective this program will be in our high school, we have selected 8 homeroom classes, 2 each in grades 9 through 12, to receive posters, information, and sunscreen. We will ask parents of these students to provide them sunscreen to bring to and use at school. If students do not bring sunscreen, we will ask parents for written permission for the school to provide an SPF 15 sunscreen, and we will encourage youngsters to use it. Funding for the sunscreen that Punahou provides will come through income from the school's recycling program with the City and County of Honolulu. After we track the use of sunscreen by students in these classes, we will revise our approach as needed to reach all 1,600 students in our high school.

In April this year we kicked off our program by putting up a variety of American Cancer Society posters in prominent places—in the cafeteria, at the entries to our libraries, and near club bulletin boards. Next, in an assembly, our senior students saw and heard a student slide show about safe beach-going and outdoor athletics, followed by brief remarks by student speakers—athletes, surfers, and class-leaders supplying sunscreen testimonials. Modified for each audience, students presented this same assembly to students in grades 9, 10, and 11.

Our teacher package will include an adaptation of the sunscreen booklet written and produced by Bruce Miller and Scott Bogle at the University of Hawaii Sea Grant Program. Additional copies of useful science and social studies lessons, along with news and scientific articles will be appended to the newly illustrated, 2-color booklet.

The causes and chemistry of ozone depletion offer a great opportunity for students to investigate a real-life environmental problem that affects them directly. Because the information shows UV conditions worldwide and has copies of NASA satellite photos, we hope that teachers will take advantage of the opportunity to teach geography, investigative science, politics, economics, and ethics: for here is an issue that has brought nations together in search of a way to halt man-made causes of ozone depletion. We also will include an art assignment to allow youngsters to depict their understanding of the problem and arrange to display their work in our libraries.

Miller and Bogle of Sea Grant have also shown students how to read UVB

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FIGURE 1: Kanani Taliaferro and Suzie Oki trying a handheld UV ray meter

rays with a prototype hand-held Sunsensor-meter that they have temporarily lent to us. When these meters become available commercially in the fall for about \$30, we plan to use some of the school's income from community recycling to buy a number of them for use in science classes from elementary through high school. By computer and modem, Sea Grant also has made available to us daily readouts of UV rays from the more sophisticated UV meters at UH Manoa and atop Mauna Kea on the island of Hawaii. Here is an opportunity for children to use technology to learn how to monitor shifts in stratospheric ozone and consequent increases in UVB rays, real science at the moment. Thus far, when students have measured the UV data themselves and have seen what it means in terms of their health, they are far more likely to become sunscreen-users.

With up-to-date UV measurements, people of different skin types can now establish how long a time they have in the sun before they will begin to burn. Local dermatologists have developed 4 categories of skin types: Always burns/ never tans; usually burns/sometimes tans; sometimes burns/ usually tans; never burns/always tans. Building on this information and on data from the producers of Sunsensor-meter and from UH Sea Grant, my Earth-at-Risk students are now designing color posters to show what the UV readings mean for people with differing colors of skin. Students will be the models depicted on the posters as well as the photographers and graphic designers, collaborating with our media-support specialist. Once we have the prototype posters completed, we will be happy to share them with other agencies for their production and distribution.

Finally, because Punahou has video-production facilities and students taking advanced video production courses, 2 talented young video producers from our Television Journalism class have been assigned to work with 2 classmates from Earth-at-Risk to write and produce a 10-minute videotape in which kids teach kids about the need to use sunscreen. Like the slide show, the lighthearted, positive focus will remain on kids of various ages and skin colors involved in normal outdoor activities: Skateboarding, swimming, playing volleyball in the park, shooting baskets in the schoolyard, or just sitting in the sun.

Because video production is labor intensive, our students hope to complete their production and make it available for use at Punahou sometime in May of 1993. If the tape succeeds with its audience, we will make available a master to

private and public schools with which to make their own copies.

We are also examining other video productions which tell the story of ozone depletion and health hazards, and we hope to add a video bibliography of the best to our teacher package.

Because they are aware of the new potential for damage by the sun and hazards to health, Punahou President Rod McPhee and Principals Win Healy and Duane Yee have been very supportive of our efforts. By using students to teach other students, and by collaborating with Dr. Norman Goldstein, UH Sea Grant, the American Cancer Society and other community agencies, Punahou School hopes students will learn to save their skins for a lifetime.

Appendix

Save-our-skin materials

1. Questionnaire per age level concerning: knowledge of ozone problem, UV rays, sunburn frequency and impact, sun screen use.
2. Posters:
 1. The hole story
 2. Skin like leather
 3. Ban the burn
 4. Honolulu newspaper full-page copies
 5. Student-made posters
3. Handout: Look for the danger signs; sample melanomas for ABCD.
4. Booklet for Teachers: ozone chemistry, causes; UV impact on all life; preventive measures against CFCs, etc; UV impact on human health, protective measures for human health. Reading. Sample quiz/questionnaire. Sample sunscreen experiment, with accompanying sunscreen samples.
5. Color slide/overhead projections of planet Earth receiving the sun's rays, and NASA satellite photos of ozone hole.
6. City by city, region by region UV-ray index.
7. Xeroxed news reports on the ozone hole and its consequences.
8. Xeroxed magazine and scientific articles.
9. Student-created poster with skin types. UV readings, and color pictures of skin types.
10. Student-created slide show on depletion of ozone, UV problems, causes, protections. Also has live teenage models (surfers, athletes, beach-goers) using hats and sunscreens.
11. Video productions: Student productions showing kids imparting message to other kids.
 - Commercials. Professional productions: Dick Cavett; preventive measures for CFCs etc.
 - Sunsor tape; After the Warming by James Burke
12. Permission slips for students to sign in order to use sunscreen.
13. Science and Social Studies curricular exercise Australian form.
14. Sample letters to write Congress, President, EPA, manufacturers.
15. Macintosh Computer game: Global Recall. Offers a simulated version of actual ozone data and possible solutions to examine.
16. Student art and student logos.
17. Sunsensor meter available probably in fall for \$20 to \$30 to use in reading UVB rays. Useful to science labs.