

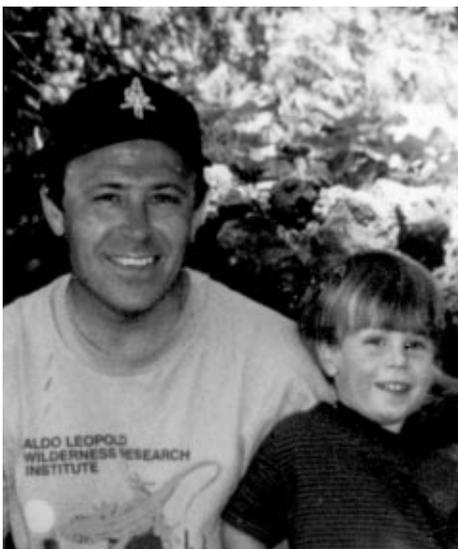
What Is the Impact of the Impact Monster?



Evaluating Environmental Education Programs

Meet Dr. Bill Hendricks:

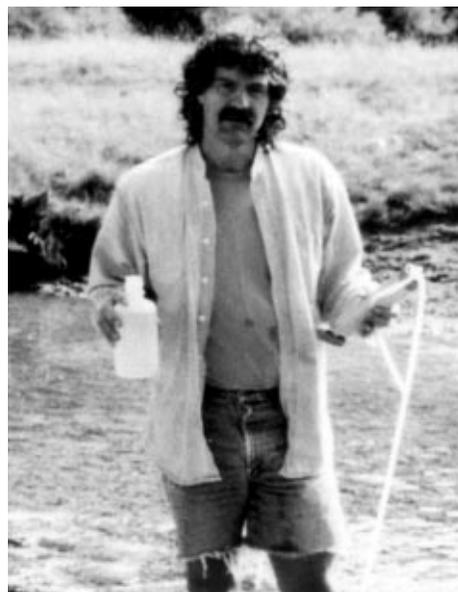
I like being a scientist because I can uncover answers to complex questions. I became interested in natural resources as a child when my family spent time in a park or a forest.



Dr. Bill Hendricks with his son, Sam

Meet Dr. Alan Watson:

I like being a scientist because I'm helping to keep something special for future Americans. I became interested in natural resources when I was a kid and my family used to visit my uncle and aunt's farm near Elgin, Kansas. We ran free and wild there and learned about nature.



Dr. Alan Watson



Thinking About Science

When teachers teach something, they and others want to know whether

their lessons are worthwhile. There is a branch of science called evaluation (e **val** yoo a shen). Evaluation enables scientists to determine the value, worth, or condition of something. When evaluation is applied to education, it helps teachers discover how well they are teaching students. Test-taking is one kind of evaluation. You know that tests help teachers and others determine how much you have learned. But do you know what else test-taking does? It helps the teacher determine how well he or she is teaching! In this study, the scientists took a different approach.

They asked the teachers for information. It was like the teachers were taking a test, except that they were not graded, and there were no right or wrong answers. Now that's our kind of test!



Thinking About the Environment

In this study, the scientists wanted to evaluate a lesson about wilderness. When we call an area of land a wilderness, it means we have given it a special *legal* status. Wilderness areas are treated differently than other land areas. They are protected by law from most human activities, except for fun things like camping, hiking, canoeing, and *backpacking*, and for scientific activities. People are not allowed to live in wilderness areas. They can only be visitors for a short period of

time. Plus, people are mostly not allowed to use any motorized equipment in wilderness areas. When people visit a wilderness area, it is as if they are stepping back in time to visit the land as it was before humans made much of an impact (Figure 1). Wilderness areas provide recreational opportunities and the opportunity for people to see nature that has not been disturbed by humans. These areas also help people by preserving *biodiversity* and unique *ecosystems* and providing clean water and air, homes for wildlife and *endangered species*, and an area for scientists to study nature that has not been disturbed by humans.

Introduction

When people visit a wilderness, they should protect it as much as possible. *Wilderness managers* often use education to teach people how to behave



Figure 1. Eagle Creek Wilderness – An example of a wilderness area.

Glossary

legal (**le** gul): Relating to law.

backpacking (**bak** pak ing): Camping by carrying food and equipment on one's back.

biodiversity (**bi** o duh vür suh te): A measure of the differences between the types and numbers of living things in a natural area.

ecosystems (**e** ko sis temz): Community of plants and animals interacting with each other and with the nonliving environment.

endangered species (en dan jürd **spe** sez): Wild plants or animals with so few individual survivors that the species could become extinct in the area where it naturally lives.

wilderness manager (**wil** der nes **ma** ni jür): A skilled individual who manages a wilderness area.

survey (**sür** va): A method used to ask questions to collect information.

associated (uh **so** she a ted): Closely connected with another.

facility (fuh **sil** uh te): A building or room for some activity.

Pronunciation Guide

| | | | |
|----------|-----------|-----------|------------|
| a | as in ape | ô | as in for |
| ä | as in car | ü | as in use |
| e | as in me | ü | as in fur |
| i | as in ice | oo | as in tool |
| o | as in go | ng | as in sing |

when they visit a wilderness area. One of the ways students learn about how to behave when they visit a wilderness area is through a special skit. The skit is called the Impact Monster Skit. Although this skit has been used for years, no one had asked the people who used it what they thought about it. Wilderness managers did not know whether it needed to be improved. The scientists in this study wanted to evaluate the Impact Monster Skit by asking people questions about it. (Remember, some tests are not graded!) The scientists wanted to discover three things:

1. Is the Impact Monster Skit an effective way to learn how to behave in wilderness areas?
2. Which age groups learn the most from the skit?
3. What are some problems with the skit, and how can it be improved?



Reflection Section

- If you were the scientist, how would you find out what people think about the Impact Monster Skit?
- The Impact Monster Skit is one way to teach kids how to behave in wilderness areas. What are some other ways that kids could learn how to behave in wilderness areas?

The Impact Monster Skit

The Impact Monster Skit is like a short play that teaches people how to behave in areas like wilderness. In the skit, people pretend to go hiking in an area that is like a wilderness area. During their hike, they meet an Impact Monster (Figure 2). The Impact Monster leaves litter on the trail, picks wild flowers, and does other things

that harm the natural environment. The Impact Monster and the hikers learn how these actions hurt the environment. They learn how to behave in such a way as to protect the natural environment. Visit <http://www.wilderness.net/ca/rhart/manual/k-8/04K-8.PDF>, pages 42-45 of the PDF file.



Figure 2. Students meet the Impact Monster.

Methods

The scientists collected their information by sending a written *survey* to 83 teachers who have used the Impact Monster Skit. Most of the people who responded to the survey were not actually school teachers, but were people who work for the Forest Service (you can read about the Forest Service on the back of this journal, or go to the *The Natural Inquirer* web page at www.naturalinquirer.usda.gov). Sometimes, Forest Service employees went into schools

to present the Impact Monster Skit. They also taught other groups of kids, like Boy Scouts and Girl Scouts.

Surveys are like tests, but there are no right or wrong answers. On the survey, the Forest Service teachers were asked these four things:

1. How often did you present the Impact Monster Skit and where did you present it?
2. To what age groups did you present the skit?

3. How well did the skit teach kids how to behave in wilderness areas?
4. What problems did you have when you used the skit?



Reflection Section

- Can you think of other ways that surveys are used in society? Think about what you hear in the news. For example, “The latest survey (or poll) shows that....”

- The scientists asked questions of people who presented the Impact Monster Skit to students. Who else could they ask about the effectiveness of the skit?

Results

Fifty-five people responded to the survey. According to those 55 responses, the Impact Monster Skit was used most often in schools. Table 1 shows the settings where the Impact Monster Skit was used.

The Impact Monster Skit was presented to students from kindergarten through high school. The skit was ranked as most effective for fourth, fifth, third, and sixth grade, in that order. Table 2 presents how many people thought the Impact Monster Skit was effective.

The last question looked at problems encountered when

| Location | Number of people who said they presented at that location | Percent of people who said they presented at that location |
|---------------------------------|---|--|
| Schools | 43 | 78.18 |
| Forest Service training session | 34 | 61.81 |
| Campfire programs | 25 | 45.45 |
| Teacher training workshops | 19 | 34.54 |
| Cub/Boy Scouts | 19 | 34.54 |
| Environmental education camps | 16 | 29.10 |
| Girl Scouts/campfires | 14 | 25.45 |
| Church | 12 | 21.81 |
| Leave No Trace training courses | 11 | 20.00 |
| Local fairs | 10 | 18.18 |

Table 1. Impact Monster Skit locations.

| Rating | Frequency | Percent |
|-----------|-----------|---------|
| Excellent | 9 | 16.4 |
| Very good | 22 | 40.0 |
| Good | 13 | 23.6 |
| Fair | 8 | 14.5 |
| Poor | 3 | 5.5 |

Table 2. Overall program effectiveness of the Impact Monster Skit.

presenting the Impact Monster Skit. The most frequently stated problems were students being afraid of the toy weapon used in the skit, Forest Service teachers getting tired of presenting the skit, and students thinking it would be cool to be like the Impact Monster rather than as a person who takes care of the wilderness.



Reflection Section

- Look at Table 1. Where did Forest Service teachers present the skit most often?
- Do you think it is important to learn about wilderness? Why or why not?

Implications

Based partly on the results of this survey, the toy weapon is no longer used in the Impact Monster Skit. The results also show that the Impact Monster Skit should be presented mostly to students in grades 3-6. Teachers presenting the program may avoid getting tired of it by getting the students more involved and by making changes in the program to include local types of plants and animals. By evaluating educational programs such as the Impact Monster Skit, you can see that these programs can be improved.



Reflection Section

- Do you think your teacher can tell how well you are learning without asking you? Why or why not?
- In what ways does your teacher determine how effective a particular program is in your classroom?

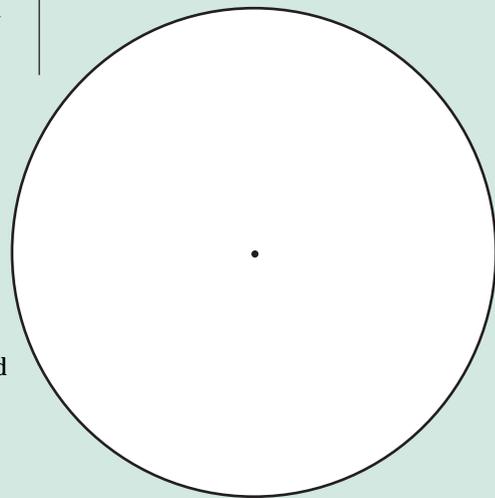
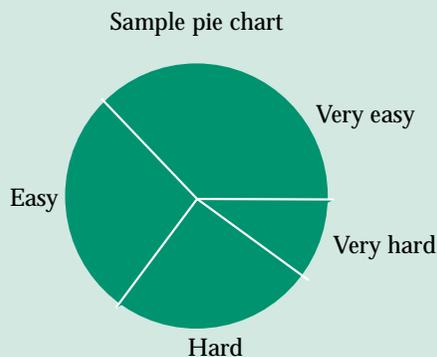


FACTivity

You have learned how important it is to evaluate education programs. Now you will have a chance to do it! You can either evaluate this article or another article from *The Natural Inquirer*. All students in your class must evaluate the same article. Have your teacher copy the student

You can create a pie chart from Table 2. A pie chart is a circle, and each section looks like a slice of the pie. A pie chart is a way of showing the relationship between values. The pie slices will be different sizes depending on the value *associated* with each slice. You will need a protractor to create your pie chart. Before you start, you need to know that every circle contains 360° . The circle and the dot have already been supplied. Draw a line from the dot to any place on the circle. This is your starting point. You can see that the rating of excellent will take up 16.4 percent of the circle. Multiply 360° by .164 (why should you use .164?). The

answer is 59.04° . Use the protractor to mark 59.04° from your starting line. You may not be able to get it exact, but that is okay. Draw a line from the center dot to the outside of the circle to create a pie slice that is 16.4 percent of the circle. If you do this for each value, you will fill up the circle with pie slices of different sizes. Each slice represents one of the ratings. Color the pie slices different colors. Label your pie chart by writing down the rating each slice represents (for example, "excellent" and "very good").



evaluation form on page 49 (or if you are on the website, go to the "Student's Corner"). Every student should have a copy of and complete this evaluation form. Once everyone has completed the form, it's time to summarize the results. When you summarize, you take all of the information collected from everyone and reduce it to a single number.

Why do you think you need to reduce it? It would take a long time to present each student's response to each question. Instead, you calculate a class summary for each question.

Begin with question #2. Ask a student volunteer to write the class' responses on the blackboard. Count how many students answered each of the choices in question 2. Then,

The other 3 R's

To provide a place for the athletes to compete, 2002 Games planners had to build some new *facilities* in the natural areas surrounding Salt Lake City, Utah. The 2002 Games planners knew that mountainous natural areas could be easily damaged by people. Therefore, they did many things to protect the

natural environment. Can you think of one of the ways they protected the environment? Here's a hint: You are holding it in your hands right now! (Or, you might be looking at it on a computer screen!) That's right! They developed environmental education materials, like *The Natural Inquirer*. When people learn more

about a natural area, they can take better care of it. Do you know what the other 3 R's are? Fill in the blanks:
Re_____,
Re_____, and
Re_____.



you will need to calculate the percentage of the whole class each choice represents. Divide the number of students responding to each question by the total number of students in the class. If there are 25 students in your class and 11 of you said the article was very easy to understand, you will divide 11 by 25, or 25 into 11. The answer is .44, or 44 percent. You can do this with questions 2-9. What kind of change must you make to do this calculation with question 11? You will not be able to do this kind of summary for question 10. Instead, you can list everyone's response. You can make a table for each of the questions 2-9 and for question 11. You can also create a pie chart for each. See the example chart below.

After calculating the responses to these 11 questions and considering your findings, do you think that the article was easy or hard for

Question 2.

| The article was: | Number of students responding | Percentage of Responses |
|--------------------------------|-------------------------------|-------------------------|
| Very interesting to understand | | |
| Easy to understand | | |
| Hard to understand | | |
| Very hard to understand | | |
| TOTAL | | 100 percent |

your classmates to understand? Was it interesting or boring for your classmates? Do you think your classmates learned something from the article? How do you know? What other things can you say about the article, based on this evaluation?

When you have finished this FACTivity, have your teacher collect your forms and send them to Dr. Barbara McDonald, USDA Forest Service, 320 Green St., Athens, GA 30602-2044. Your responses will be added

to the responses of students from around the country. Then, all of the responses from around the country will be summarized and listed on *The Natural Inquirer* website.

From Hendricks, William W. and Watson, Alan E. (1999). Wilderness educators' evaluation of the Impact Monster program. *USDA Forest Service Research Paper RMRS-RP-15*.

Website

<http://www.wilderness.net/leopard/>
<http://www.wilderness.net>