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Entry into Elementary Science through Live Animals

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ENTRY INTO ELEMENTARY SCIENCE THROUGH LIVE ANIMALS

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Introduction

Some yeers ago I did a series of animal behavior film loops for the Ealing Company (1). The film loops sold well. Their distribution has been taken over by a subsidiary of CBS and they still sell. The series has been a commercial success. But I judge it a pedagogical failure.

The films featured the following animals: snail, frog, gerbil, guinea pig, pillbug, parokeet, Betta fish, fiddler crab, and iguana. The human actors were elementary school children who were shown caring for and investigating the animals. Investigations were behavioral, and involved no physiological or invasive procedures. Also, they were open-ended: that is, only the beginning of an investigation was shown. Viewers were invited to continue the investigation on their own.

Each film included an application to some non-science area of the elementary curriculum. In the guinea pig film, for example, the children graphed the growth of their animals. In the frog film they did a frog dance. In the snail film they made wax-resist paintings of snail trails. In the iguana film they did sculpture; the iguana is a very well-behaved model.

The educational rationale of the series was as follows: Science tends to get short shrift in the elementary school. By and large — though with honorable exceptions — elementary teachers dislike science and are afraid of it. Yet children love animals — not just puppies and kittens, but animals of all kinds. Could not work with living animals be an inviting entry into elementary science investigations?

Methods

Each Ealing animal film loop is not intended to be the centerpiece of a lesson but merely introduction and motivation. The heart of the learning activity is the care-taking and investigation follow-up which the students do, and the correlation with other curricular areas. The study guides to the films carefully describe this rationale. This concept is fantastically successful when it is applied with enthusiasm. The films are a total waste when the concept is not applied.

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Visits around the country to schools and other educational facilities convince me both that the Ealing animal films are missing their educational objective, and that the schools are missing an opportunity. I find the films in high schools, in elementary schools and in independent AV-media centers. Several Iowa education area media centers list the films as high school resources. After all, animals are biology, and biology is a high school subject. Yet, with their child actors, the films don't belong in high school. They do belong in elementary school. In areas that stock them, do elementary teachers even know that the films, and the technique they represent, exist?

Another cause for my disquiet is actual observations in elementary schools. In a local school I taught the snail film in two combined 4th grade classes. I provided snails and equipment. After showing the film, I conducted a hands-on lesson. Mrs. R continued the lessons daily for a week, and sporadically thereafter. She collected additional snails locally as she needed them. Most of the students kept their snails in individual jars, and of their own volition continued to work with the animals for the rest of the school year. Some children took their snails home over the summer, then brought them back and continued working with them into the following school year. Early in the intervening summer Mrs. R received this letter from one of her children:

> Dear Mrs. R —
>
> How have you been? I am very glad you'll be teaching next. My family and I went fishing at a pond and Tina my sister cought five fish mommy cought one and I cought one and my daddy didn't catch any. My brother Bill is home from the servise and he might stay till the 4th of July. We have a volkswagen and so my brother ordered one two and he's waited for about a week. Now back to the pond, well I coght wee baby frogs and fore of them died and you know those snails you gave away and I told you mine got out of the jar well I found it and now he's eating the lettuce. would you try and ask Mr. Weinberg what to feed bady frog we gave them lettuce and turtle food but they didn't eat it.
>
> Your friend
> De Ann T.

Did the snail spark an illuminating science lesson? Judging from De Ann's continuing interest, I believe it did. (I agree that it didn't teach much English.)

When the original film showing began, the other teacher, Miss B, departed for the office to attend to some clerical work. After all, a film was being shown and her class was covered. The teacher was not needed. When she returned, she collected her class and marched them back to their own classroom. They turned their attention to another subject. End of science class.

Too many elementary teachers follow Miss B's pattern. A "science film" is a break in the day's routine. It provides entertainment for the children and an opportunity for the teacher to catch up on pressing work. The "science lesson" proper is likely to consist of reading from a science textbook — usually beautifully illustrated — then answering and perhaps discussing several questions. I submit that this isn't science. All that it succeeds in doing is to kill whatever residual interest the children have in science.

Who is responsible for the destructive kinds of science teaching exemplified above? The teacher training institutions must accept some of the responsibility. How easy it would be to put in the hands of the education student some puppies or kittens, and a guide for investigating their behavior — or some of the animals used in the Ealing film loops — or to utilize any of the scores of other interesting and readily available animals — or even to visit and observe some farmyard animals. The enthusiasm thereby engendered in a non-scientific-minded education major in time is likely to be transmitted to his or her students. An enthusiastic teacher is in the best position to build on the pre-scientific curiosity that most children bring with them to the classroom. Effective science teaching — which has its roots in human curiosity — can begin.

Animal Studies

Keeping animal pets is a well-established practice in elementary classrooms. In some instances, though not too often, the animals are used for a well-planned entry into scientific inquiry (2). The trouble is that untrained elementary teachers just don't know what to do with the animals except love them and feed them. Yet Robert Gantert in Seattle has for years, and with great success, been developing the kind of activity advocated here (3). ESS (4) and ISCS (5) have some excellent science inquiry activities based on animal behavior. An old book, Comstock's *Handbook of Nature-Study,* has a world of intriguing activities. We need more such simple, life-oriented materials. And elementary education departments need to promote them and to train students in their use.

Scientific purists tend to regard formal "experiments" — in genetics, for example — as the desired mode of science instruction. Simple observation, and non-controlled and non-quantitative investigations are denigrated as "nature study" and "bird watching." The pejoratives should not trouble us. James D. Watson began his distinguished career in molecular biology as an Indiana bird watcher. It seems to me that formal science instruction is inappropriate in the elementary grades. More appropriate are approaches that simply arouse interest and develop familiarity with the natural world. For these purposes living animals are ideal.

Animal Care

When using animals in school, some preparations are essential (7). Safe and sanitary housing for the animals must be available. Provision must be made for looking after the animals over holidays, weekends, and vacations. The teacher should have some training or experience in animal care. A veterinary, animal scientist, or zoologist should be available to advise as needed.

Don't keep exotic animals that are hard to care for. In general, stray or wild animals should not be collected. Absolutely never collect protected animals. Any animals, such as frogs or salamanders, that are taken from the wild should be safely returned to their habitat after they have served their classroom purpose.

The children should be rigorously trained in humane considerations. In this area the code of the National Society for Medical Research is a good guide (8). Always be alert with regard to the health and safety of the children using the animals. School and teacher should be protected against liability in case an animal does cause damage or injury. These precautions are not excessive.

Conclusion

Animals can be immensely productive in elementary education, as suggested in this news clip from Los Angeles.

> Thousands of boys and girls have passed through the doors of Room 8 at the Elysian Heights Elementary School since 1953. But none ever became as famous as Room 8 himself.
>
> This was the classroom mascot, a white and gray tomcat. Years passed, but Room 8, as the youngsters called him, stayed around.
>
> Television shows pictured Room 8. Books and articles described him, and the school collected not only fame, but cash royalties. Thousands of letters from many countries came addressed to him.
>
> Then Room 8 died of a kidney ailment at the age of 22.
>
> "School won't be the same," a teacher said.

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Free Materials

Available from Educational Materials, Chevron Chemical Company, Public Affairs Department, 575 Market Street, San Fransisco, California 94119, is a number of free booklets: (Free films are also available.)

A is for Apple
Nutrition: Food for Thought.
Celebration of Life: Trees.
Teacher's Guide: National Tree Study Contest.