

## **The Amazing Chemical Circus**

Evaluation Research for NSF-Funded Informal  
Science Education



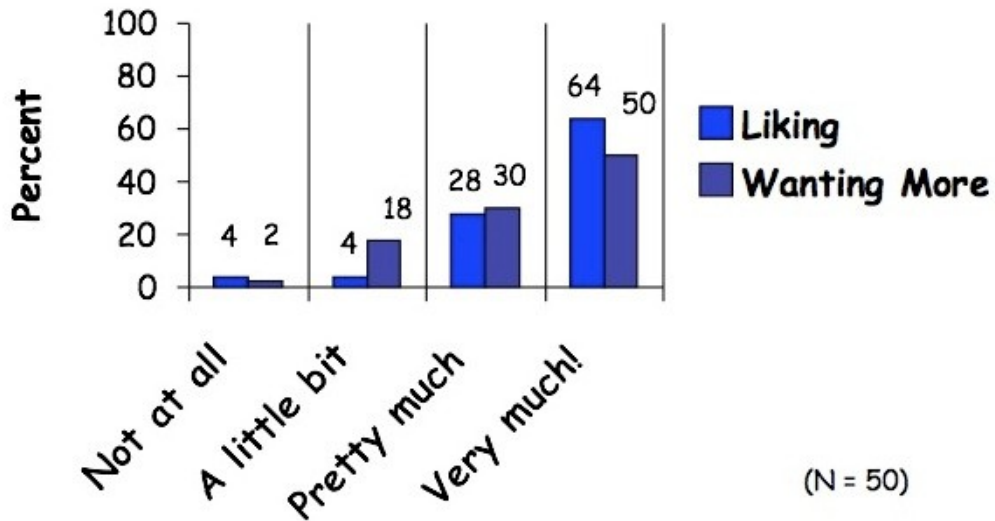
Two in-studio shows, April 28, 2007

The Amazing Chemical Circus was presented at two in-studio shows at Madison Area Technical College on April 28, 2007. Three sets of lessons involving chemical demonstrations were presented as the acts of a circus by three chemistry instructors. Two actors playing the Ringmaster and Squirt supported the lessons by interacting with the instructors and the audience.

The evaluation was carried out in the form of pre-show and post-show questionnaires filled out by 56 children ranging in age from 2 to 14 (with younger children being helped by their parents), and post-show questionnaires filled out by 40 parents.

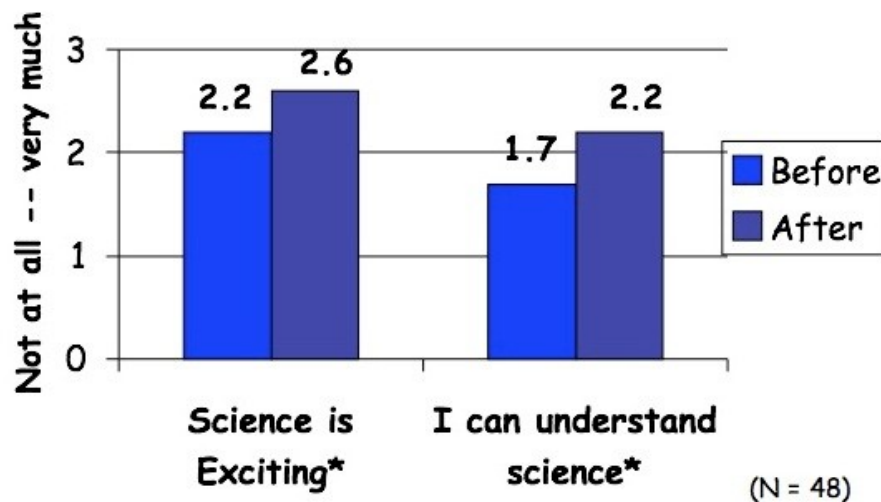
Almost two-thirds of the kids said they liked the show “very much” (the highest rating) and would like to see more shows like it:

### Children's Evaluations of "The Amazing Chemical Circus"



The kids showed significant increases in two of five favorable attitudes toward science.

### ACC and Attitudes toward Science

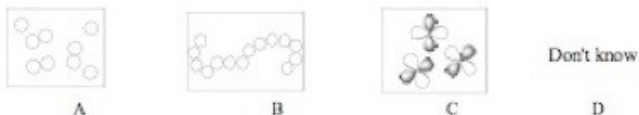


\*pre-post difference significant at  $p < .001$

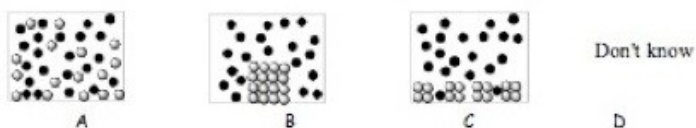
Kids were also given two concept-learning questions (one about polymers and one about combustion), which they answered both before and after the show.

## ACC: Concept Learning Questions

Which of these pictures looks most like a polymer?

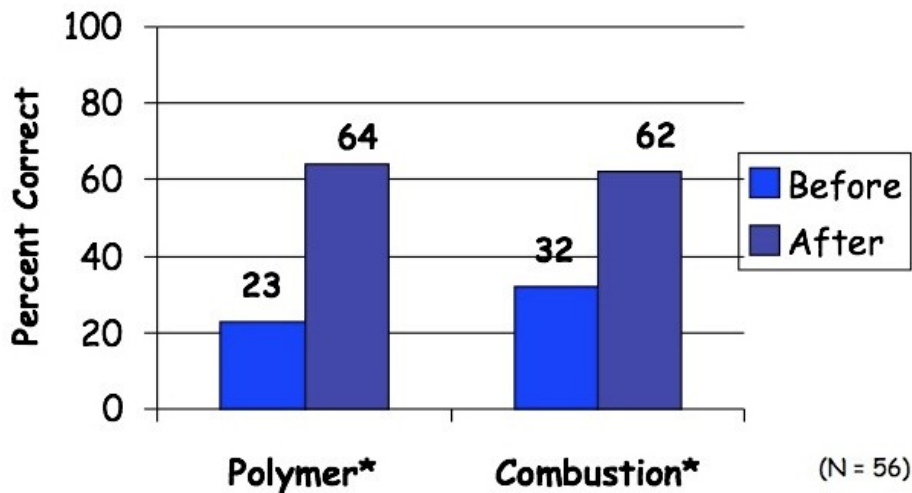


In the picture below, ● = oxygen molecules and ○ = fuel molecules. Which picture shows the oxygen and fuel molecules the way they will burn fastest?



Their performance improved significantly on both questions.

### Learning from The Amazing Chemical Circus

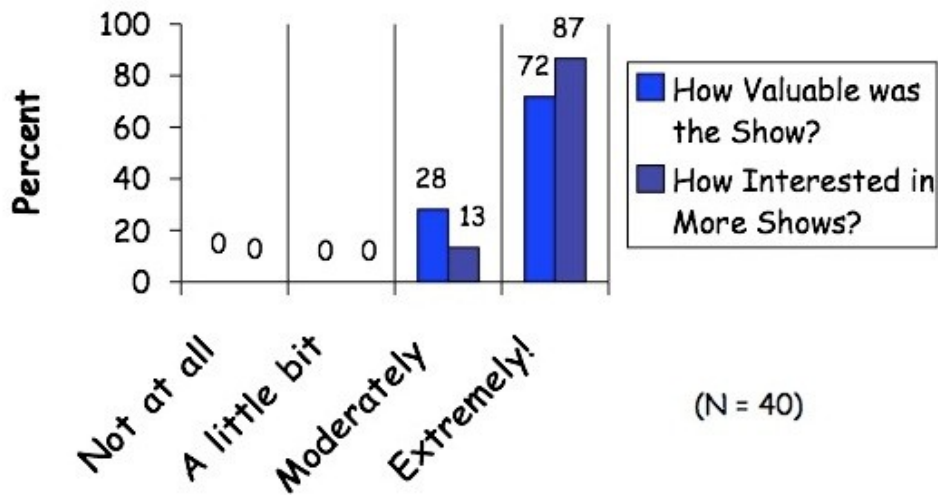


\*pre-post difference significant at  $p < .001$

Parents also rated the show very highly in answering the following two questions:

“How valuable did you feel this experience was for your child?” and “Would you be interested in bringing your child to more shows of this type?”

### Parents' Responses to The Amazing Chemical Circus



Most of the comments from the kids were very enthusiastic. Here are a few:

- Very very very cool
- I loved the show
  - It was great
- Want to come again
- The scientists were great
- My favorite parts were the balloons and the big tube explosion
  - It was awesome!!!!!!!!!!!!!!!!!!!!!!!!!!!!
  - That was amazing

-- Joanne Cantor, Ph. D.