Hawaii: Roots of Fire

Evaluation Summary

Evaluator: Diana Curiel

Introduction

The intention of this formative evaluation has been to help the producers refine the effectiveness and usefulness of the proposed film. For this purpose, the evaluator assembled viewer groups to evaluate a rough-cut of the film. The adult viewer group comprised 19 individuals, and the youth viewer group comprised 26 middle school students (8th grade). A pre- and post-viewing survey developed by the evaluator was administered to quantify what the viewers learned and how engaging the material was. The results of the pre- and post-viewing surveys are summarized in the following report.

Hawaii: Roots of Fire
Previewing Questions: *What do you know about research on Hawaiian Volcanoes?*

1. The Hawaiian Islands
a. are all about 1 million years old
b. range from 5.5 million to 1 million years old
c. are a young island chain, less than 100,000 years old

2. Hawaiian volcanoes
a. are formed in the same way as all other volcanoes
b. have volumes hundreds of times greater than other volcanoes
c. bring up magma from just underneath the surface of the ocean floor
d. all of the above

3. In order to study volcanoes, it is useful to have knowledge of:
a. physics
b. petrology
c. chemistry
d. geology
e. all of the above

4. A "hot spot" is
a. a point on Earth's surface where a volcano has erupted
b. a bed of molten lava before it has cooled and hardened
c. a stationary magma-producing region below a moving tectonic plate

5. A mantle plume is:
a. an explosive volcanic eruption of molten lava
b. an upwelling of very hot or molten rock coming from deep in the Earth's mantle
c. a magma chamber just below the earth's crust where magma rises through a tear in the crust

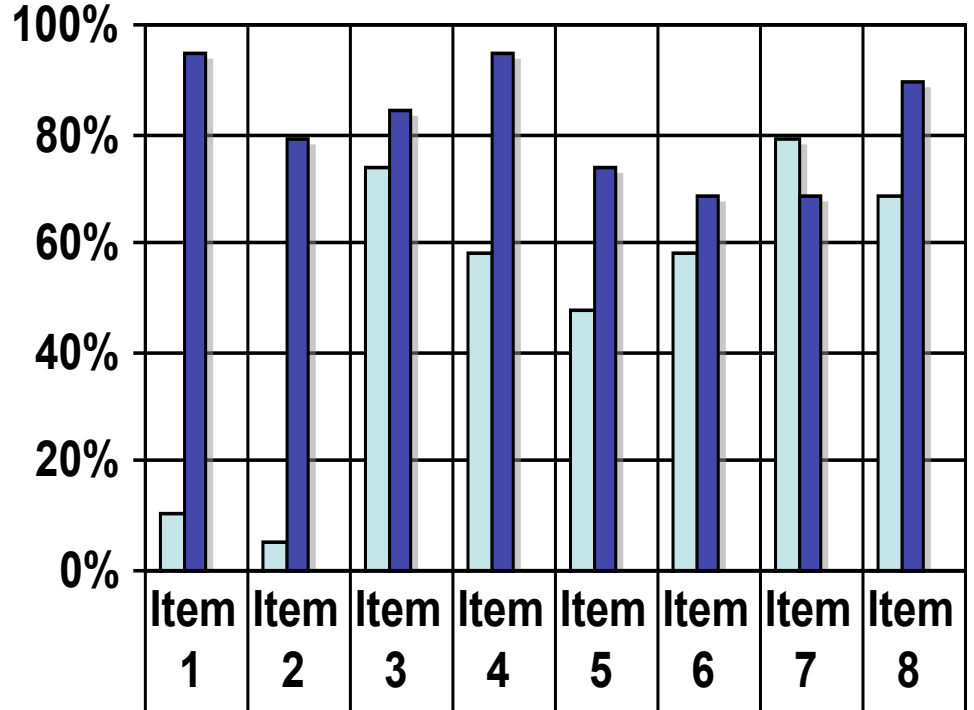
6. By studying certain volcanoes, scientists can better
a. learn what the deep interior of the planet is made of
b. learn how fast the earth's tectonic plates move
c. calculate the time it takes to build a volcano
d. a and c only
e. all of the above

7. To understand more of the unique nature of Hawaiian volcanoes, scientists have:
a. gathered samples of hardened lava on the exterior of a dormant volcano to investigate the interior
b. measured seismic waves (from earthquakes) passing through the Hawaiian islands
c. drilled thousands of meters through hardened lava to obtain deep lava samples
d. all of the above

8. Another scientific field that allows scientists to study the interior structure of Earth is:
a. seismology
b. the study of glaciers
c. meteorology
d. all of the above

Hawaii: Roots of Fire

Preview and Post-view Question Results for 19 Adults



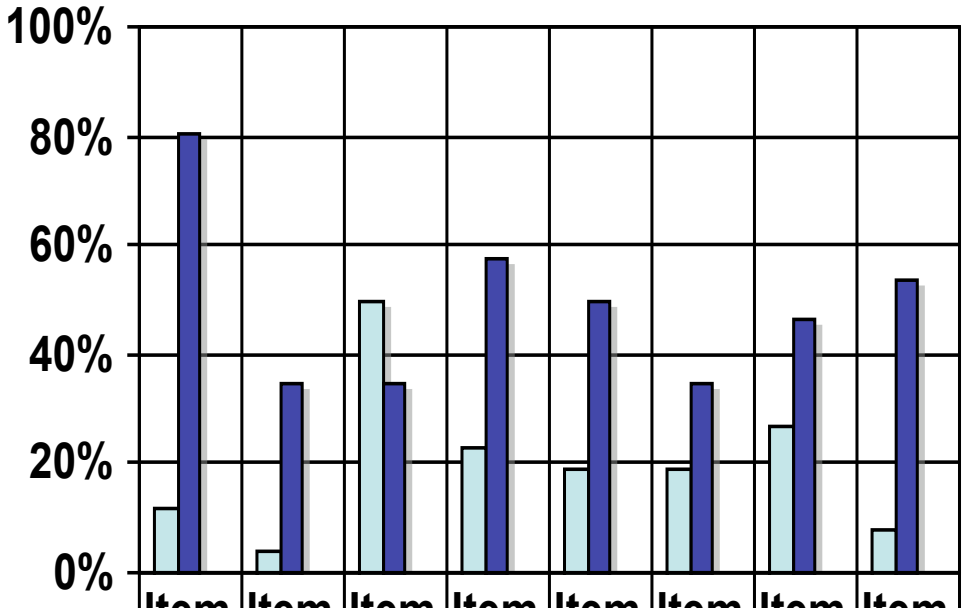
	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Percent correct before viewing	11%	5%	74%	58%	47%	58%	79%	68%
Percent correct after viewing	95%	79%	84%	95%	74%	68%	68%	89%

Hawaii: Roots of Fire
19 adults: group demographics

Age	11 adults between age 18 and 54	8 adults 55 and above			
Gender	6 males	13 females			
Education	2 hold no college degree	7 hold one or more BA or BS degrees	10 hold one or more graduate degrees (MA or PhD)		
Ethnicity/ Race	11 White non-Jewish	4 White Jewish	1 Black (mixed race)	2 Latino	1 mixed race (unspecified)

Hawaii: Roots of Fire

Preview and Post-view Question Results for 26 Middle School Students



	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8
Percent correct before viewing	12%	4%	50%	23%	19%	19%	27%	8%
Percent correct after viewing	81%	35%	35%	58%	50%	35%	46%	54%

Note: There was a noise distraction (school bell) during the explanation for item #3, so the students could not hear the explanation.

Hawaii: Roots of Fire
26 middle school students: group demographics

Age	26 students ages 13-14				
Gender	5 males	21 females			
Education	26 8th grade students				
Ethnicity/ Race	11 Latino	4 Pacific Islander	2 Filipino	2 Asian Not Vietnamese	2 Vietnamese
Ethnicity/ Race	1 Asian Indian	2 African/ African-American	2 Caucasian/ White		

In addition to the above content-based previewing questions, the post viewing questions included the following questions to assess viewer engagement:

Post viewing Questions: *How engaging was the film ?*

1. Did this film raise your interest in any of the following topics? (circle yes or no)

A. Hawaiian Islands yes/no
B. Hawaiian Volcanoes yes/no
C. Volcanoes in general yes/no
D. Earth's deep interior yes/no
E. Scientific techniques for studying the earth yes/no

2. Which part(s) of the film interested you the most? Why?

3. Were there parts of the film that needed more (or less) explanation? If so, explain.

Adult Responses to Post-viewing engagement question #1:
"Did this film raise your interest in any of the following topics?"

Topic	Number responding yes	Number responding no
A. Hawaiian Islands	16	2
B. Hawaiian Volcanoes	16	2
C. Volcanoes in general	15	4
D. Earth's Deep Interior	14	5
E. Scientific Techniques for Studying the Earth	14	3

Note: Not all respondents answered all the yes/no questions.

Middle School Student Responses to Post-viewing engagement question #1:
"Did this film raise your interest in any of the following topics?"

Topic	Number responding yes	Number responding no
A. Hawaiian Islands	19	5
B. Hawaiian Volcanoes	20	4
C. Volcanoes in general	7	17
D. Earth's Deep Interior	12	12
E. Scientific Techniques for Studying the Earth	6	18

Adult and Middle School Viewers Responses to Post-viewing engagement question #2:
"Which part(s) of the film interested you the most. Why?"

Comments paraphrased or summarized	Number of respondents with this comment
Scenery and cinematography beautiful, exciting, appealing Volcanic activity impressive	10
Good/important to see female scientists	2
Chain of islands and connection to Aleutian islands interesting	6
Animations and graphics good/interesting	5
Current state of knowledge, details about core samples interesting	1
Pleased that narrator is a woman	1
Interesting concepts about tectonic plates, core, formation of land, structure of Earth	9
Liked comparison of different Hawaii volcanoes	2
Drilling project interesting	4

Adult and Middle School Viewers Responses to Post-viewing engagement question #2:
"Which part(s) of the film interested you the most. Why?"

Comments paraphrased or summarized	Number of respondents with this comment
Surprising difference of scale between Hawaiian volcanoes and others	1
Information on mantle plume /depth of plume interesting	3
Age of volcanoes interesting	2
Analysis of lava interesting	1

Adult and Middle School Viewers Responses to Post-viewing engagement question #3: "Were there parts of the film that needed more (or less) explanation? If so, explain." Also included are viewer suggestions.

Comments paraphrased or summarized	Number of respondents with this comment
Narrator needs more inflection in voice	2
Narrator is drowned by music in the beginning	1
Don't like British accent	1
Prefer narrator with a Hawaiian accent	1
Metric system is confusing--needs conversions for American audience	3
Needs a map/diagram showing where all volcanoes are: unclear that they are all on the Big Island	2
Needs comparison/contrast with other volcanoes around the world	6
Needs more labels on everything	2
Explain alternative theory more--diagram of tear in crust is confusing	2
Explain how ancient Hawaiians knew which islands were oldest	3
Add more of Hawaiian people's perspective	3
Don Thomas too serious and this distracts viewer from his message	1

Adult and Middle School Viewers Responses to Post-viewing engagement question #3: "Were there parts of the film that needed more (or less) explanation? If so, explain." Also included are viewer suggestions.

Comments paraphrased or summarized	Number of respondents with this comment
Give more background on Earth structure	1
Explain what the mantle is	1
Explain more about He-3	1
Explain why He-3 is only found in the core	2
Explain how drilling is done to that depth	1
Needs more discussion of relevance, application, implications of this research	6
More explanation of hotspots/mantle plume (middle school comment)	1
Too much repetition of same animation	3
Too technical in 2nd half	1