**How To Make Sense of the Information Out There**

**Teaching Notes, Key, and References**

**Significance**:

In today’s age of information overload it is very important for us to learn how to evaluate all the information that we have access to and make informed decisions based on them. We are constantly asking ourselves one or more of the following questions:

* Do we trust all sources of information?
* Is the evidence for a claim based on reliable and relevant data?
* How do we determine which arguments are strong and which are weak?
* Are there any logical fallacies (errors) in the arguments being made in a news article?
* Are there multiple ways of thinking about a piece of evidence? Were all possible outcomes considered in deriving the conclusion/making the claim?

**Learning Objectives**:

1. Recognize that all available information and claims may not be credible/reliable and/or relevant
2. Learn how to evaluate a claim

**Key to Exercise**:

Read the article: “A weighty problem: how to halt obesity in the developing world” <http://www.theguardian.com/global-development/poverty-matters/2014/jan/03/weighty-problem-halt-obesity-developing-world> and answer the following questions:

1. The author claims “as a result of the proliferation of junk food, two-thirds of Mexicans are overweight” (paragraph 7). Is this claim justified by evidence that is cited in support of it?

a. Yes

b. No

Answer is b. While a correlation between “proliferation of junk food” and Mexicans becoming overweight is reported, the cause and effect relationship between these events is not explained in the article. There is no data that suggests that the increase in number of overweight Mexicans is due to eating more junk food, which is now easily accessible. Other factors, such as physical inactivity, may also play a role in the Mexican obesity problem.

2. In the last four paragraphs, the author argues in favor of government-led initiatives and incentives to improve their citizens’ diets, in order to tackle the rise in obesity. What is the evidence that is relevant to support this argument?

a. The changes to the law on trans-fatty acids in foods have been effective against rising obesity in Denmark

b. The government-backed initiative to promote traditional low-fat meals in South Korea has been effective against rising obesity in that country

c. The imposition of taxes on fizzy drinks has been effective against rising obesity in Mexico

Answer is b. Promotion of a traditional low-fat diet in South Korea over many years (Paragraph 10) is associated with a low obesity rate in the population compared with other countries. The statements about Denmark and Mexico do not provide direct evidence that the government-led initiatives have successfully improved their citizens’ diets, health or obesity.

**Extension:**

Instead of a typical lab report, have students write up the experiment using the format of *Claim-Evidence-Reasoning* (CER). Students complete research to answer a question with a claim and then turn data into evidence and explain their reasoning. BSCS (Biological Science Curriculum Study) provides a more detailed explanation of the details and provides a template to guide students. Both can be found [here.](http://bscs.org/sites/default/files/_media/about/downloads/scientific_explanation_tool.pdf)

**References**:

The following resources provide more insight into these topics:

1. Helping your students develop Critical Thinking Skills ([IDEA paper # 37](http://ideaedu.org/wp-content/uploads/2014/11/IDEA_Paper_37.pdf), <http://ideaedu.org/wp-content/uploads/2014/11/IDEA_Paper_37.pdf>)
2. Critical Thinking in Global Challenges (a Coursera MOOC, https://www.coursera.org/course/criticalthinking/)
3. How to Write a Scientific Explanation (<http://bscs.org/sites/default/files/_media/about/downloads/scientific_explanation_tool.pdf>)