

### Unit 2 Self & Society: evaluating explanations

**Objective:** to provide further practice of evaluating explanations, this time within the context of **Self & Society**.

The three-step strategy for developing this soft skill is:

**Step 1:** Understand the difference between correlation and causation. (Ex. A)

**Step 2:** Read facts presented by the media and advertisers carefully to see if they are implying that one thing causes another. (Ex. B, Ex. C, Ex. D)

**Step 3:** Evaluate explanations of the facts to decide whether claims of causation are accurate or inaccurate. (Ex. B, Ex. C, Ex. D)

You may decide to highlight this strategy at the beginning of the lesson, and to conduct a short discussion to check that the students understand the skill and why it is useful. However, if you prefer to teach this lesson without discussing the underlying soft skill, this is also possible. The lesson is designed to be engaging and successful either way.

For more information about teaching life skills and ideas for highlighting the soft skill, please refer to p. xi and pp. 18–19 of the Teacher's Book.

#### MATERIALS:

- board and markers
- copies of the advert in Ex. D (one for each pair of students) (optional)

#### Lead-in

Read the following situation aloud to the students and ask them to take notes:

*At the end of November, a sales assistant at an independent toy shop resigned and the shop owner hired a new employee. The sales in the shop increased by 300%, so the shop owner was extremely happy and gave the new sales assistant a special bonus for outstanding results.*

Put the students in pairs to discuss the situation and ask them if they consider that the bonus was justified. Elicit ideas from the class; continue until a student points out that the increased sales were, no doubt, more a result of the Christmas period rather than the new sales assistant.

#### A

- Write the words *correlation* and *causation* on the board. Ask the students to work in the same pairs and give them a few minutes to recall what these two terms mean and the difference between them. If necessary, refer them back to Ex. A on p. 28 of the Student's Book.
- Elicit a definition of each word from the class and write it on the board, helping them to word it, if necessary (*correlation is when two things happen together; causation is when one thing causes another to happen*).
- Remind the students that correlation does not necessarily imply causation, i.e. if two things correlate, it does not mean that one causes the other. If you wish, elicit the example given in the Student's Book to illustrate this (*as ice cream sales go up, shark attacks go up, because ice cream sales rise in the summer when more people go to the beach, which means there are more people in the water for sharks to attack*).
- Elicit that the situation discussed in the *Lead-in* also implies correlation.

#### B

- Erase the board and write the following extract from a newspaper report:  
*A survey has found that children who eat breakfast do better at school than those who don't. Underneath, write the following explanations:*
  - 1 *The nutrients found in breakfast food improve academic performance.*
  - 2 *Children who don't eat breakfast oversleep because they go to bed late and/or don't have such a good night's sleep. This means they are more tired in the morning and perform worse at school.*
  - 3 *Children who refuse to eat breakfast are more stubborn and so may have behavioural issues that cause them to do badly at school.*
- Put the students in different pairs to read the extract and the possible explanations and to decide which is the most convincing and why. (All three explanations are possible.) Point out that the aim of this exercise is to show there are different variables that need to be considered when evaluating explanations.

## C

- Now write the following newspaper extract on the board:  
*A survey has found that children who sleep with the light on are more likely to be short-sighted, since the light causes their eyes to degenerate.*
- Read the extract aloud, and ask students to tell you what facts are being presented (*children who sleep with the light on are more short-sighted*) and the explanation given (*light causes the eyes to degenerate*).
- Put the students in small groups. Ask them to think of at least one alternative explanation for this fact. Discuss their ideas as a class.

**Possible answer**

Children who are short-sighted may have parents who are short-sighted (this is known to be hereditary), and short-sighted parents may leave the light on to help them see better.

## D

- Now write the following advert on the board (or give out a copy to each pair of students):

Buy new Johnston's toothpaste with added fluoride to prevent tooth decay.  
Studies show that people with gum disease are twice as likely to suffer from heart disease. So make sure you brush your teeth after every meal with Johnston's toothpaste to keep your gums healthy and prevent more serious illnesses.

- Explain or elicit that this is an advert. Ask the students to work in pairs to discuss whether the advert implies causation or correlation and to identify and note down any other possible explanations. Before they start, write the following **How to say it** box on the board. Read the phrases aloud and encourage the students to use these in their discussion.

**HOW TO SAY IT**

*This may/might/could actually be caused by ...*

*It's uncertain whether ... actually causes ...*

*A more likely explanation would be ..., since ...*

- Encourage the pairs to compare their ideas with another pair before discussing their ideas as a class.

**Possible answers**

The last sentence implies causation, i.e. if you keep your gums healthy, you'll prevent heart disease. This implies that gum disease directly causes heart disease.

However, it is entirely possible that this just shows correlation. An alternative explanation would be that people who keep their teeth clean are more likely to take care of their health and eat healthily. Secondly, age might be a causal factor for both: we are more likely to have both gum disease and heart disease as we get older. A third explanation might be reverse causation: that heart disease actually causes inflammation of the gums.

**Reflect**

- Write the following questions on the board:  
*How important is it to be critical when reading facts and explanations? Is it possible to be too critical when evaluating explanations? How?*
- Give the students time to reflect on the questions individually. Then elicit ideas as a class.

**EXTRA: HOMEWORK**

Ask the students to go online and find a funny example that shows correlation, not causation (if they type *correlation causation examples* into a search engine, there are plenty of websites with examples). Ask them to think of their own explanation for it, and bring it to the next class to share in small groups.