



This World of Humans: Episode #7 Guide for Educators

Children and Lying

These activities address specific Cross-Cutting Concepts and Science and Engineering Practices (see page 7). Many are also suitable for courses designated as "Writing-Intensive."

About the Article

This article describes two studies used to understand the relationship between young children's lie-telling behavior and parenting styles. Findings suggest a relationship between children's lie-telling frequency and their presentation of behavior problems, as well as a relationship with parenting style.

About the interview

In this interview, Dr. Crossman discusses the methodologies used in exploring the relationship between lie-telling in young children and parenting styles.

Both the article and the interview can be found here: <https://www.visionlearning.com/en/twoh/#ep7>

Recommended: pair these materials with the following Visionlearning modules: *The Practice of Science*, *Statistics in Science*, and *Experimentation in Scientific Research*. (<https://www.visionlearning.com>)

Use in the Classroom

These materials are useful for exploring ways in which scientists use technological advancements to develop new methodologies. They also assist in building understanding of the different ways in which scientific information can be conveyed. Students may benefit from listening to the interview before reading the article.

1. **Pre-reading and pre-listening activities** are provided to prompt prior knowledge and help students make connections between their own lives and the research they are learning about. Materials may be used in the classroom to generate discussion, or as homework if the article or interview will be read/listened to in-class. Having students write before speaking helps focus discussions and reading.
2. The **worksheets** are explicitly designed to walk students through the process of reading a scientific paper, as well as building disciplinary vocabulary. They serve as excellent homework assignments (if the article is read outside of class) and will direct students toward identifying important information about the research. While the answers provided can be used to check student reading, it is really an opportunity to assist students in how to read scientific material. Completed worksheets are excellent for small group discussions, allowing students to solve any discrepancies themselves, or as a debrief with the entire class.
3. **Post-reading and -listening activities** are designed to extend student thinking and engage them more deeply with the text and interview. These questions are great for small groups, for large class discussions, or for short-answer writing assignments.

Pre-reading and –listening activities

1. **Vocabulary preparation:** Provide students with the Vocabulary Worksheet and ask them to offer definitions. Clarifying terminology as a class is recommended. This worksheet is suitable for a 20-minute in-class activity if students have access to dictionaries or the internet. Many of the terms are specific to social psychology, thus *context* is critical to reinforce when assigning this activity.
2. **Writing activity:** Provide students with the Pre-reading Worksheet and ask them to complete it before reading the article or listening to the interview. The worksheet is meant to prompt their prior knowledge about lie-telling behavior and its relationship to parenting style. Responses to the question do not need to be formal or extensive.

Post-reading and –listening activities

1. **Revisiting vocabulary:** Using the vocabulary sheet students completed at the start, clarify as a group/class how the authors used the terms. Were they used the same? Differently? Explain.
2. **Discussion/Writing questions:** Use the following list of questions to engage students in thinking more critically about research methodology and the implications of method selection. These questions can be assigned as short-essay prompts, used for small-group discussion, or used to prompt whole-class discussion. Ask students to refer directly to the paper or interview to support their answers.
 - *Working with protected subjects (e.g., children) requires careful consideration of methodology. Drawing on both the interview and the paper, describe the challenges the authors had to work around. What special considerations does working with children – and studying a behavior such as lying – pose?*
 - *What questions were the researchers able to answer using data from the two studies conducted that the individual studies could not answer alone?*
 - *Describe the participants involved in Study 2. What limitations does this population present on the findings? If you were to replicate this study, what changes might you make and why?*
 - *What kind of information does a Likert scale give you? What kind of information can it not give you? How does the use of the Conflicts Tactics Scale Parent-Child [CTSPC] help the researchers? What forms of information do these data streams not provide?*
 - *What implications, if any, does the funding source [Social Sciences and Humanities Research Council of Canada] have on the research findings? If the funding agency was a private company that promoted high expectations and authoritative parenting, how would that change (if at all) your interpretation of the results?*
3. **Experimentation in Science Worksheet:** Use the worksheet as a take-home assignment for students. It should be paired with the Visionlearning module *Experimentation in Scientific Research*. (<https://www.visionlearning.com/en/library/Process-of-Science/49/Experimentation-in-Scientific-Research/150>)

Extension activities

Vocabulary Worksheet

Below are a list of terms and phrases that you will encounter while reading the article and listening to the interview. Using a dictionary, provide definitions for each term or phrase. If you cannot find a formal definition, write down what you *think* the term or phrase might mean. Keep in mind that the meanings of these terms *in science* may be different from the way we used them in common speech.

(For expected answers to these questions, see <https://www.visionlearning.com/en/twoh/request>)

Theory of Mind

Transgression

Authoritative Parenting

Antisocial Behavior

Dichotomous Variable

Positive Control

Negative Control

Logistic Regression

Internalizing Behavior/Response

Externalizing Behavior/Response

Experimentation in Science Worksheet

Use this worksheet in connection with the Visionlearning module *Experimentation in Scientific Research*.

1. What are the dependent and independent variables in each study? How do you know?
2. Does either study include a positive control? If so, which and what is that control? Were any placebos used?
3. How did the researchers check for errors in the two studies?
4. How does Dr. Crossman explain the difference between a positive and antisocial lie?
5. What is Dr. Crossman's advice to parents about guiding their child's behavior regarding lies and truth-telling?

Targeted NGSS, Cross-Cutting Concepts, and Science and Engineering Practices

The activities in this guide can be used to address the following standards, concepts, and practices.

Science and Engineering Practices	
Asking Questions and Defining Problems	<ul style="list-style-type: none"> • Ask questions that arise from careful observation of phenomena, or unexpected results, to clarify and/or seek additional information. • Ask questions to determine relationships, including quantitative relationships, between independent and dependent variables
Obtaining, Evaluating, and Communicating Information	<ul style="list-style-type: none"> • Critically read scientific literature adapted for classroom use to determine the central ideas or conclusions and/or to obtain scientific and/or technical information to summarize complex evidence, concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
Planning and Carrying Out Investigations	<ul style="list-style-type: none"> • Select appropriate tools to collect, record, analyze, and evaluate data.
Cross-Cutting Concepts	
Cause and Effect: Mechanism and Prediction: Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.	<ul style="list-style-type: none"> • Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. • Systems can be designed to cause a desired effect. • Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.
Patterns: Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them	<ul style="list-style-type: none"> • Empirical evidence is needed to identify patterns. • Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.