Confidence & Accuracy in Observations

YOU ARE HERE:

30 minutes

TEACHING NOTES

Before you begin this session:

- You'll need a computer, projector, speakers, and an internet connection.
- Load the full video before you begin.
- The URL for the video is: https://www.youtube.com/watch?v=IGQmdoK_ZfY

1. Introduce the Monkey Business Illusion video, and explain:

- **a.** You'll be watching a video related to developing observation skills. Your job is to pay attention to and count how many times the ball is passed between players wearing white shirts.
- **b.** Please watch the video in silence, and keep any reactions to yourself.

2. Play the Selective Attention Test video.

3. Lead a discussion on the video experience:

- *Did you notice anything other than the basketball passing? What?*
- *Who noticed the gorilla walking by?*
- *Who noticed the curtains change color, or the player leaving?*
- *Why did some people not notice the gorilla, curtains, and player leaving?*

4. Explain that we're not as good at observing as we sometimes think we are.

- **a.** We can be distracted from having a more general awareness when our attention is focused on particular things.
- **b.** In general, we're not as good at observing as we think we are, which is why we have to work at it.

5. Explain that humans are generally not very observant, but are overly confident, & our observations are an interpretation of reality:

- **a.** Our magnificent brains are adept at taking data in, quickly creating a picture ("filling in the holes") and making up what we can't actually see, based on our existing conceptual framework, in order to make better sense of the world.
- **b.** "Filling in the holes" works well for us… except when it doesn't.
- **c.** It's very easy to miss important details of our surroundings, yet we are often overly confident in our brief observations.
- **d.** Magicians and scam artists take advantage of these tendencies by manipulating our focus of attention, causing us to be deceived by our own observations.
- **e.** Our observations are not reality, but an interpretation or a model of reality created by our brain.

6. Share James Elkins quote:

- "My world is full of holes… The way I see is a little like the way a blind man taps along the street: he knows just that one spot where his cane touches down, and he hopes he can pretty much guess the rest." — James Elkins, *The Object Stares Back*

7. **Explain how the more data we have, the more accurately our brains can fill in the picture:**
   - **a.** Our brain can take few data points with very little information, and fill in what's missing, like the blind man with the cane.
   - **b.** The more data we have, the more accurate our impressions tend to be—we have more "touches from the cane."

8. **Share research points from the book, *Thinking Fast and Slow* about how our confidence doesn't always match the quantity of data we possess:**
   - **a.** There is research that has found that the less data we have, the less accurate we tend to be. That's probably not surprising.
   - **b.** But what may seem odd is that the less information we have, the more confident we often are about our inferences. And the more information we have, the more uncertain we tend to be about what we know.

9. **Lead a short discussion on why participants think this is so.**
   - ▶ *Can you recall examples of when someone had lots of confidence, but very limited information, or someone who had lots of information, but expressed their ideas with a degree of uncertainty.*
   - ▶ *Why do you think it's often the case that less information = confidence, and more information = less certainty?*
   - Listen to their ideas and ask follow-up questions to probe into thinking.

10. **Explain that science emphasizes being open-minded and stating ideas with an appropriate amount of uncertainty.**
    - **a.** The work of scientists is gathering tons of information from an incredibly complex world and trying to make the best explanations possible, while simultaneously being open to new data and interpretations.
    - **b.** The experienced scientist knows more about how much she doesn't know about her topic of study than most others do. It's no wonder a scientist who has spent years carefully studying something may sometimes seem less certain than someone with much less experience.

11. **Explain that being a humble observer takes practice and training:**
    - **a.** It seems that humans have a tendency toward arrogance—we tend to assume that we understand more than we actually do, as we make observations.
    - **b.** Strive for **humility** instead. "We can't possibly understand everything, but we'll do our best." For scientific observations, it's necessary to train ourselves to be better and more humble observers.

12. **Explain that making scientific observations is meant to be our best attempt at describing the world as closely as possible to reality:**
    - Although we are flawed observers, when we make scientific observations, we are trying to avoid our own biases, anthropocentrism, and our own projections from our conceptual frameworks.