B BUILDING BLOCKS OF SCIENTIFIC PSYCHOLOGY: STUDENTS’ UNDERSTANDING OF PROBABILISTIC TRENDS AND CORRELATION-VERSUS-CAUSATION

Katelyn Morrison, Luke Heidtke, and April Bleske-Rechek
Psychology Department, University of Wisconsin-Eau Claire

BACKGROUND:
Humans display a variety of cognitive biases that inhibit rational thought. For example, people search for confirmation rather than disconfirmation of preconceived notions encoded by vivid testimonial memories, over-project their opinions onto others, and combine probabilities inaccurately. Two related deficits occur in the design of reasoning: confirmation bias, in which evidence is interpreted to confirm rather than disconfirm a preconceived notion, and the representativeness heuristic, in which evidence is interpreted as confirming rather than disconfirming a preconceived notion. Evidence for these and other probabilistic reasoning deficits was collected from the general population. Our research team then examined whether these deficits exist among students and whether they are significantly different from those found in general population samples. The research question addressed whether confirmation bias and causal reasoning biases exist among students and whether they are significantly different from those found in general population samples.

METHODS:
Participants read research vignettes from various content areas, three of which are shown below (e.g., pornography consumption and marital satisfaction). For each content area, students were given a fictional scenario embedded with randomized experimental (versus) and non-experimental (versus) causal and non-causal associations (and evidence required for each), and students were asked to evaluate the nature of these causal and non-causal associations. Specifically, participants were asked to judge whether evidence was disconfirmatory or confirmatory, and whether the evidence was from experimental or non-experimental sources.

RESULTS:
- **Participants receiving experimental version read:**
  - They randomly assign 500 married people to one of two groups. The first group, the control group, is not allowed to consume pornography (via video, pictures, or magazines). The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography.
  - They collect data from an anonymous sample of married people. They are asked to come into the lab for two hours each week for a month. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography.
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- **Participants receiving non-experimental version read:**
  - They randomly assign 500 married people to one of two groups. The first group, the control group, is not allowed to consume pornography (via video, pictures, or magazines). The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography.
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- **Participants receiving experimental and non-experimental versions read:**
  - They randomly assign 500 married people to one of two groups. The first group, the control group, is not allowed to consume pornography (via video, pictures, or magazines). The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography.
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EXERCISE AND BODY DISSATISFACTION:
- **Participants receiving experimental version read:**
  - They were assigned to a high school where 100 middle school boys were assigned 200 students to one of three conditions in a controlled laboratory setting: (a) abstaining from exercise for a month. Students in the second condition were assigned to exercise for two hours per week for a month. After the month was complete, all students were asked how satisfied they were with their bodies.

- **Participants receiving non-experimental version read:**
  - They were assigned to a high school where 100 middle school boys were assigned 200 students to one of three conditions in a controlled laboratory setting: (a) abstaining from exercise for a month. Students in the second condition were assigned to exercise for two hours per week for a month. After the month was complete, all students were asked how satisfied they were with their bodies.

DISCUSSION:
- **Participants who read the experimental scenarios:**
  - They randomly assign 500 married people to one of two groups. The first group, the control group, is not allowed to consume pornography (via video, pictures, or magazines). The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography.
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- **Participants who read the non-experimental scenarios:**
  - They randomly assign 500 married people to one of two groups. The first group, the control group, is not allowed to consume pornography (via video, pictures, or magazines). The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography. The first group, the control group, is not allowed to consume pornography. The second group, the experimental group, is allowed to consume pornography.
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GENERAL DISCUSSION:
In general, participants consistently confused experimental and non-experimental scenarios. Specifically, participants frequently inferred cause-and-effect relationships from correlational data. A large percentage of these participants were also likely to select the causal direction that fits people’s intuitions. When people read an experimental scenario, some of them selected the incorrect causal direction, suggesting that they may not have considered the preconceived notion. However, this study demonstrated the probability that the trend may not be true in all cases. Over 1 in 5 (20%) mistakenly inferred that any user who consumes pornography will also be dissatisfied with their bodies.

REFERENCES:

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