Why Not Both: A Qualitative Analysis of Alternative Outcomes

Megan Schneider, Milo Martinez, Dana-Lis Bittner, Wilson Cobb, and Edward Munnich
University of San Francisco

Background

When interacting with empirical research, it is important to consider possible alternative outcomes for research studies.

- Classroom interventions with high school students (Munich et al., 2004) and Journalistic graduate students (Ranney et al., 2008) have prompted students to consider alternative predictions and explanations and found transfer to consideration of alternatives in novel items in a test phase: when asked about new items they discussed potential alternatives without prompting and their estimations were more accurate.

- Despite this, in a brief intervention in which participants made predictions about the results of psychological studies and were provided the actual results, they did not show transfer in test phase. (Hoffmann et al., 2016; Ortega et al., 2017).

This leads one to believe that perhaps the classroom setting is a vital component for transfer.

Current Study

How does alternative causal reasoning help with reasoning for novel information?

- When learning new information, people often overestimate their approximation abilities (Hindsight Bias; e.g., Slovic & Fischhoff, 1977) so we manipulated when participants were given results several studies - whether they predicted results before (Foresight) or after (Hindsight) learning the true outcome.

- We mimicked a classroom discussion, by first asking participants why they thought one outcome occurred, then presenting them with a reason another participant gave for the opposite outcome.

- Here we wanted to examine the nature of the alternative outcomes participants thought of to infer future studies

**Question:** What kinds of alternative reasons are participants thinking of, and in response to which questions?

Materials

**Participants:** were undergraduates in an introductory psychology course, randomly assigned to either a Hindsight or Foresight group.

**Materials and Procedure:** Items were based on the results of six psychology studies, divided into sets of three, which were counterbalanced across Learning and Testing Phases:

- **Learning Phase:** A brief description of the psychological finding was presented, then participants either predicted the results of the study or indicated what they would have predicted after being given the results.

- **Test Phase:** participants predicted the results and gave explanations for their predictions. Then they learned the actual results of the studies and indicated their surprise levels.

Summary of Quantitative Results

See Bittner et al. (2019)

**Hindsight Bias:** Participants in the hindsight condition showed hindsight bias for some items, and their confidence was significantly inflated in comparison to the foresight participants' confidence for those items.

**Alternative Outcomes:** There were no significant differences in confidence between learning and test phases suggesting that as a group participants did not consider alternative outcomes. However, we observed that individual participants were generating alternative reasons. We now turn to a qualitative analysis of these responses.

Present Results

**Trends in the data:** although not all participants listed alternative outcomes, a minority consistently demonstrated alternative reasoning.

- The two studies that elicited the highest number of responses demonstrating alternative reasoning were notes-by-hand vs. laptop (n=7) and children vs. no-children (n=9). This could be due to participants’ familiarity with these issues, facilitating their access to reasons in both directions.

- Very few participants provided alternative responses for keep vs. change answer, normal vs. unusual font, and virus vs. beast

A Closer Examination of Alternative Reasons

**Method**

- **Tasks to keep answer:** was taught to answer based off of your intuition because it was explained to me whether your answer put first is a reaction that you know the answer right off the bat. On the other hand you should be careful not to overlook choosing a different answer.

- **Notes to change answer:** but sometimes that is blatantly incorrect way to go about taking tests because sometimes your first answer may be wrong.

**Notes by Hand:**

- Normal font
- Normal font

- Alternative outcomes would be distracting.

- Notes by Hand

- When notes are taken by hand are committed to memory better that notes taken online.

- However, since there is the possibility of being distracted while using computers, taking notes by hand may remove all distractions. Taking notes by hand is also slower so it means more time to retain information.

- Just mostly depending on what the teacher’s style of teaching and what they put on the side or what they do.

**Children**

- Alien's adults may have friends who have children and might feel left out

- Children are great resources for Happiness because they bring a sense of purpose, love, and fun.

- However, if both partners work to care for and love for the child, it usually results in the pair becoming closer than they were before

**Discussion**

Some possible explanations for these trends are:

- The topics of several studies were easily understood or it was easy to generate alternative outcomes

- For two studies, a significant minority of participants listed alternative outcomes. This suggests that it is reasonable to strive to cultivate consideration of alternative hypotheses in a college psychology classroom.

- For one study (change vs keep answer) reasons for two different alternatives were widespread, but did not occur on an individual basis. This suggests that class discussions of the issue would lead individuals to consider both outcomes. The trends found here will inform how to prompt for alternative reasoning in future research. We hope to look at whether prompting for plausible vs. implausible outcomes impacts confidence in an initial outcome.

**References**


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