Title

Bias in Evaluating Research that Confirms or Disconfirms Prior Belief

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How do people judge obviousness, which may lead them to accept or resist believing the results of a research study? Prior work on scientific reasoning and social cognition demonstrates that people use prior beliefs when evaluating new information and that such beliefs are often resistant to change (e.g., Lord et al., 1979; Zimmerman, in press). Other research has shown that when people read a research finding they tend to believe it is "obvious," which may demonstrate a type of hindsight bias (e.g., Wong, 1995). Such research, however, has not specifically examined effects of prior expectations about the findings. Evaluating research after expressing a belief about the outcome may be similar to evaluating evidence that challenges or confirms political attitudes. Alternatively, simply reading about a research result may make the finding seem "obvious," and thus participants rate the methods and findings similarly regardless of whether they explicitly state an expectation about the findings. In addition, the presence of an explanation for the findings may affect evaluations (e.g., Koslowski, 1996; Wong, 1995).

Method

Ninety-four undergraduates completed a questionnaire. Participants read that researchers have been studying the relative efficacy of direct instruction as compared to discovery learning. Participants indicated which method they thought was more effective (forced-choice). All participants then read the same one-page description of an experimental research study, including a brief introduction and method section. The appropriateness of the methods, design, participants and measures were evaluated on a 7-point Likert scale. Participants then read the study's findings, which described either direct instruction or discovery learning as more effective (thus confirming or disconfirming participants' prior belief), and the reported results either did or did not include an explanation. After reading the findings, participants rated how obvious, important, and interesting they found the study conclusions on a 7-point Likert scale. They then completed a second evaluation of the methods, design, participants and measures.

Results & Discussion

Ratings of the methods' appropriateness increased when belief was confirmed but decreased when belief was disconfirmed, $F(1,90) = 13.3$, $p < .001$. There was no main effect of explanation, and no interaction between belief confirmation and explanation (F's ≈ 1). Similar patterns were found for ratings of design, participants, and measures, though the last two did not reach significance. Whether one's prior belief was confirmed affected methodology ratings, regardless of belief content.

Participants' ratings of the conclusion's obviousness were greater when their initial belief was confirmed than when disconfirmed, $F(1,90) = 5.78$, $p = .018$. Although there was no main effect of explanation, there was a disordinal interaction between belief confirmation and explanation, $F(1,90) = 4.26$, $p = .042$. The presence of an explanation increased ratings of obviousness of a confirmed belief but decreased ratings of obviousness of a disconfirmed belief. When no explanation was given, ratings were similar regardless of belief confirmation. Participants' ratings of research importance and interestingness were influenced by prior belief and explanation, with no interaction.

One possible explanation for this effect is that although we presume participants' initial opinions on the topic were committed to on the spot, these beliefs may actually be reasonably strong and well-established. If so, then challenging or confirming those beliefs would result in behavior similar to that observed when other strongly held beliefs or attitudes are challenged (e.g., Lord et al., 1979). Alternatively, it is possible that being forced to state an opinion early, even if chosen somewhat arbitrarily, led to a commitment to the position and consistency within the task.

The current findings establish some of the boundary conditions for judging the obviousness of research (e.g., confirmation and explanation need to be considered in conjunction). Judging a research finding to be "obvious" clearly involves more than a simple hindsight bias.

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