

When Scientists Disagree: How we frame uncertainty influences public trust of science

Neel, R., Murtha, N.R., Ledlow, S., Neuberg, S.L., & Kenrick, D.T
Arizona State University



Background

This research explored how message framing affects public trust of climate science. Climate change science is inherently uncertain: Will rainfall increase or decrease in a particular region? By how many inches will sea level rise? Scientists, policy-makers and educators face a conundrum when communicating climate change predictions: How to accurately present possible future outcomes while also acknowledging the uncertainty inherent in such estimates.

Hypotheses

1. Seeing that scientists' opinions differ results in less trust than seeing scientists agree on a range or average
2. The affect of framing might be stronger for conservatives than for liberals.

Method

N = 239 from online U.S. sample

- Participants randomly assigned to one of three framing conditions
- Outcome: participants' trust of scientists

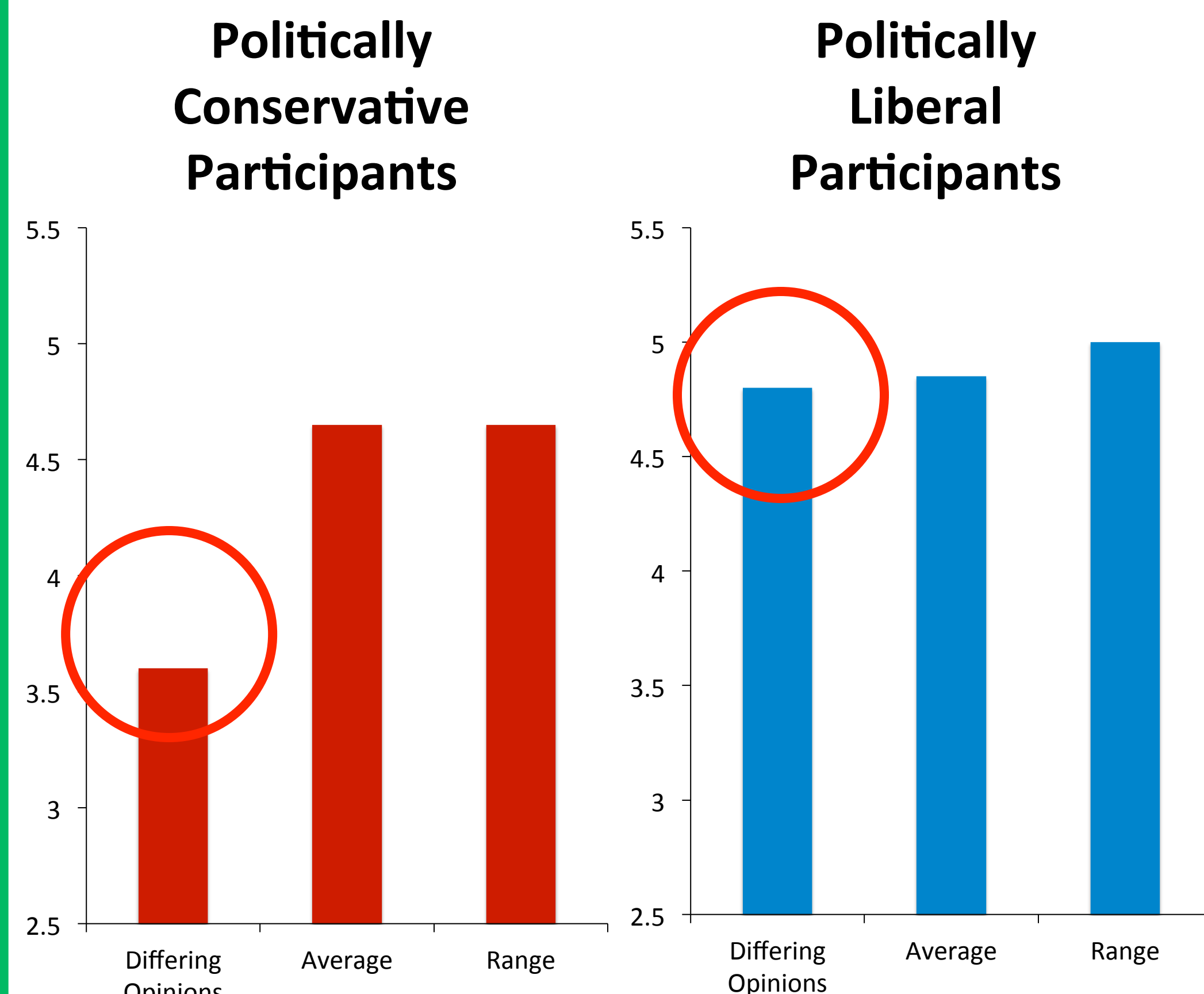
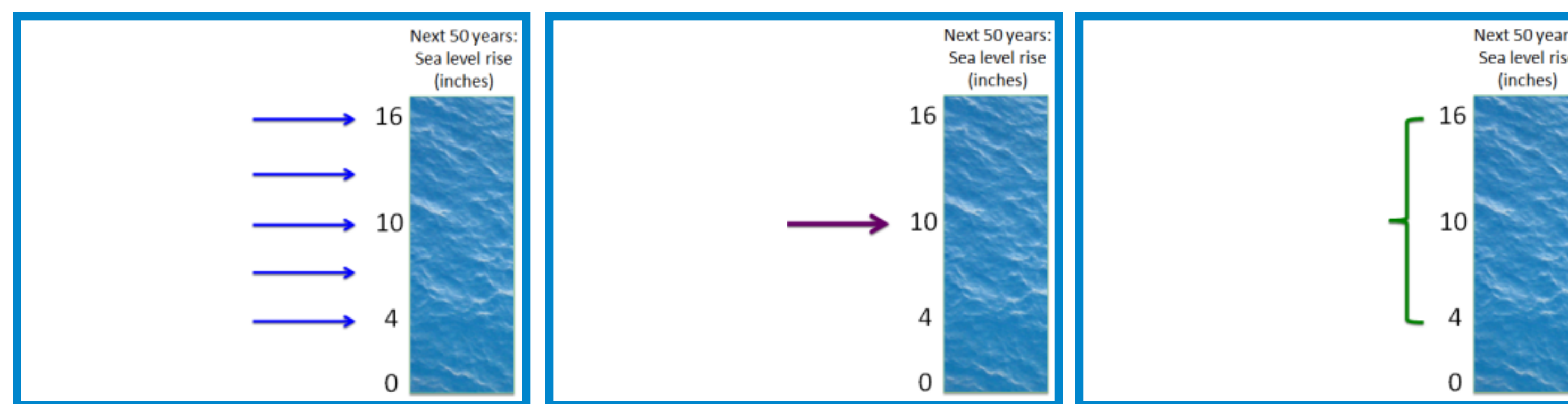
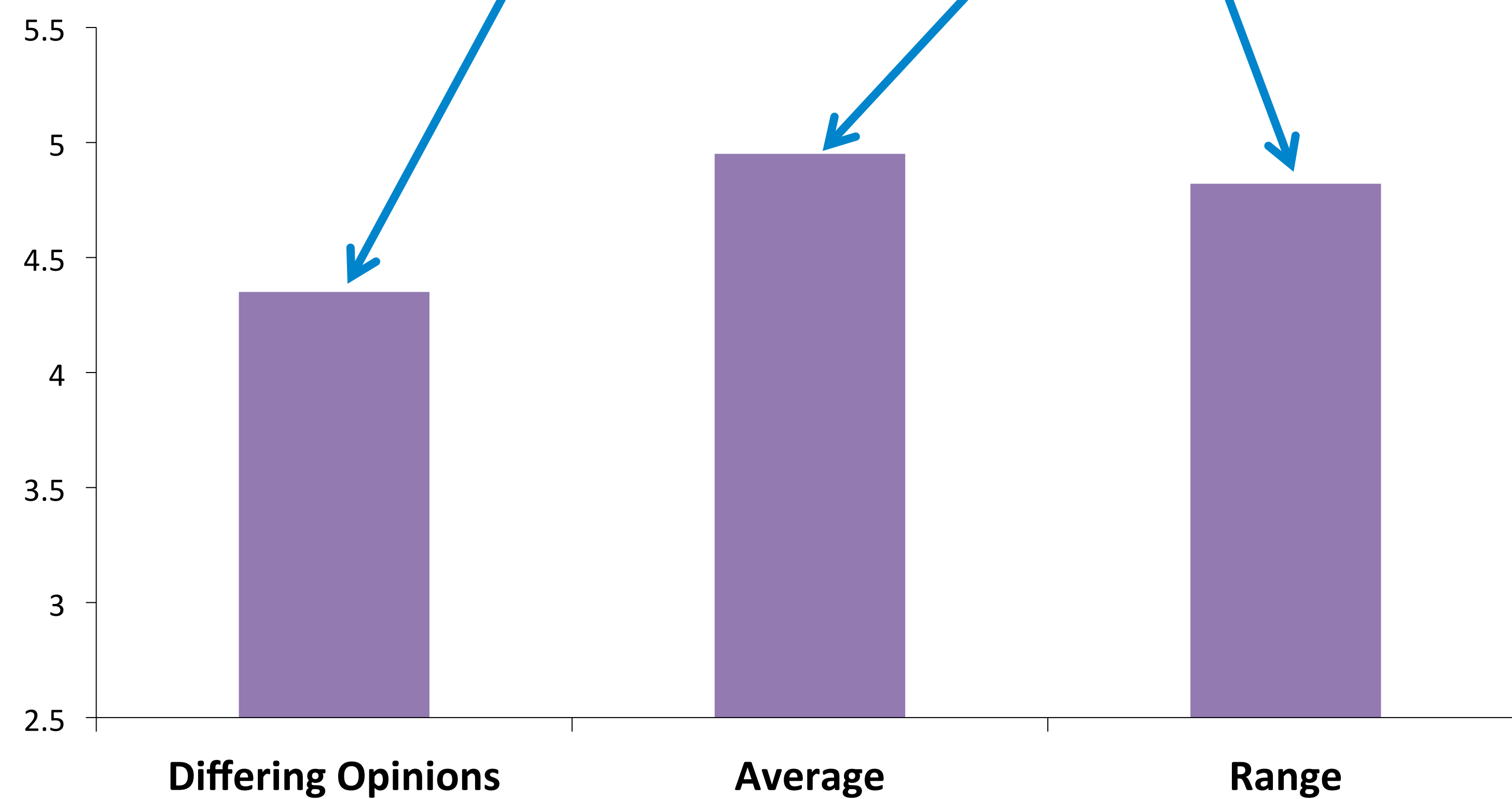
All participants first read a short paragraph stating that many of the world's scientists agreed that sea level will rise over the next 50 years as a result of climate change.

Participants were then randomly assigned to see either a **differing opinions, average, or range condition** – all conditions had the same average magnitude of sea level change (10 inches).

Trust in Climate Scientists

When presented with differing opinions about how much sea level will rise, participants trusted scientists less, even though the information was the same as represented in the range and average framings.

Participants trusted scientists about the same amount in the average and the range conditions.



- Conservatives trusted scientists significantly more when seeing average and range estimates than differing opinions.
- Liberals, in contrast, trusted scientists equally regardless of the framing they saw.

Message framing seems to have a stronger effect for conservatives than for liberals.

Discussion

We found that participants' trust in the science

- was about the same for the average and range conditions
- was significantly lower in the differing opinions condition

However, the effects were moderated by political orientation:

- Liberals showed little difference in their trust of scientists across conditions.
- Conservatives reported significantly lower trust in scientists in the differing opinions condition.

Framing uncertainty about the magnitude of effects affects public trust the source of the information.

Future Directions

The current research found that seeing differing opinions leads to less trust in climate science than seeing an average or range of predictions. However, the effect is mostly being driven by the politically conservative participants.

For our future research we plan to:

- Investigate if a participant's distance to the coast had any influence in belief in sea level rise.
- Replicate the current study with an issue in which liberals are more skeptical of than conservatives.

For further information please contact

rebecca.neel@asu.edu

This material is based upon work supported by the National Science Foundation under Grant No. SES-0951366
Decision Center for a Desert City II: Urban Climate Adaptation (DCDC).