Prediction Error, Emotion, and Information-Seeking Behaviors in the Context of the 2020 U.S. Presidential Election

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Background

Prediction Error (PE) (PE can be defined as the discrepancy between the anticipated and the actual outcome of an event).
- In previous literature, PEs have been associated with experience-based learning, information-seeking behaviors, enhanced declarative memory, and the magnitude of emotional responses.
- Yet, the correlation between PE and real-life emotion and behaviors is undercharacterized.
- We previously examined surprise's correlation with emotion and memory following the 2016 American presidential election.
- We found that surprised individuals reported greater emotional responses compared to non-surprised individuals.

Present Study: PE and the 2020 American Presidential Election

Aims: building off of our work with the 2016 presidential election, to investigate the extent which PEs are associated with changes in emotion and media information-seeking behaviors following the 2020 American presidential election with more detail.

Hypotheses:
- Increased PEs, both positive and negative, will be associated with:
  - Stronger emotional responses
  - Increases in information-seeking behavior through increased media consumption
- Exploratory Hypothesis: Increased PEs will be associated with increases in the partisanship of the media consumed

Methods: General Study Design

U.S.-based online participants (N = 360) from across the political spectrum recruited on Prolific.co to complete questionnaires at three timepoints:

- Time 1: October 2020 (1 month prior to election; N=162)
- Time 2: November 2020 (Right after Associated Press Call; N=107)
- Time 3: February 2021 (Chasing Analysis; N=91)

At each timepoint, participants reported positive and negative affect about the election (PANAS) and media information-seeking behaviors through number, frequency, and partisanship of sources consumed. Partisanship scored quantified using Pew Research Center Media Bias Ratings.

Results

Distribution of Prediction Error by Reported Party Affiliation

Significant difference in PEs across Republicans and Democrats in magnitude and direction. Republicans tended to have negative PEs that were larger in magnitude than Democrats' average positive PEs. For Republicans, α = 0.526; for Democrats, α = 0.238; t(135.49) = 15.076, p < 0.01

PEs significantly predicted changes in affect

Using linear regression, PEs were related to changes in positive and negative affect regarding the 2020 election from T1 to T2 (pre-post outcome).

- PEs significantly predicted changes in positive affect: Increasing PPEs were associated with increasing positive affect (β = 11.526, p < 0.001)
- PEs significantly predicted changes in negative affect: Increasing PPEs were associated with decreasing negative affect (β = -15.542, p = 0.002)

Model comparison verified that these PE effects were significant over and above those related to election preference alone.

Conclusion

- Both positive and negative prediction errors may be associated with changes in emotional responses and aspects of media information-seeking behavior.
- Moreover, negative prediction errors were associated with a shift towards consuming media sources with greater conservative partisanship.

Overall, these results:
- Tie observations of affective and behavioral consequences of prediction errors to a naturalistic human event
- Suggest a psychological mechanism that may contribute to increased partisanship following a disappointing political outcome.