UNRAVELING PARTISAN MISINFORMATION: EEG INSIGHTS INTO COGNITIVE FLEXIBILITY

Daniela Lizarazo-Villarreal[1,2], Angela Marti-Marca[2], Mireia Torralba Cuello[2,3], Salvador Soto-Faraco[2,4] & Clara Pretus[1]

[1]Autonomous University of Barcelona; Spain; [2]Multisensory Research Group, Center for Brain and Cognition, DTIC, Universitat Pompeu Fabra, Barcelona, Spain; [3]Serra Húnter lecturer, Department of Physics, Institut de Recerca en Innovació i Salut,Universitat Politècnica de Catalunya-BarcelonaTech, Spain; [4]Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain

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Background: In today's digital era, misinformation poses a threat to people's health, well-being, and democratic rights, shaping public discourse. Understanding its cognitive underpinnings is crucial. Literature on political extremism suggests that those who are on the far right of the spectrum are less sensitive to discerning false claims and more likely to share misinformation compared to moderates and liberals. However, the reasons behind this difference are still unknown. Thus, there is an urgent need to understand the cognitive processes guiding our perception and interaction with digital content.

Aims: In this study, we examine whether cognitive flexibility: the ability to adapt to new information, explains differences in the rate of misinformation engagement across the political spectrum.

Methods: Ongoing data collection includes conservatives and liberals in Spain (N = 100), who participate in an EEG study. Participants complete a Stroop task, a classical cognitive conflict task assessing flexibility, and a misinformation task examining participants' likelihood of engaging with partisan misinformation and their response to fact-checking. To understand the relation between susceptibility to misinformation and the neural correlates of cognitive conflict, we will extract the difference in amplitude of fronto-medial Theta oscillations between conflict and congruent trials.

Preliminary Results: Preliminary behavioral results showed reduced engagement with false (but not true) headlines following accuracy feedback ($\beta s \approx -0.20$, $ps < .02$), with a significantly greater reduction for false than true headlines ($p = .025$) and did not vary by political orientation among participants ($p = .62$). This suggests that the capacity to update responses to misinformation may be broadly preserved across political orientation groups. Ongoing analyses will examine whether neural signatures of cognitive conflict, indexed by fronto-medial theta oscillations, predict individual differences in misinformation engagement and responsiveness to accuracy feedback. By integrating behavioral and neural measures of cognitive flexibility, this project aims to identify the mechanisms that support adaptive updating in politically charged information environments.

Keywords: Misinformation, EEG, Extremism, Cognitive flexibility

E-mail contact: daniela.lizarazo@autonoma.cat