

Who does one trust in the climate crisis? Comparing three confirmatory factor models for the Climate Change Trust Scale

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Introduction

- Climate change is an ongoing planetary crisis, and a global effort is required to lessen its negative impacts.
- People need information on climate change to act in this global effort, but many times people do not act on the information they receive about climate change.
- One potential reason for this could be the level of trust people have in the various sources of climate change information – climate change speakers.
- The Climate Change Trust Scale (CCTS): 12-item survey created to measure people’s trust in climate change speakers
- Six common speakers on climate change were included: Business leaders, community leaders, farmers, environmentalists, politicians, and scientists.
- This study explores the factor structure of the CCTS using three confirmatory factor analysis models. Additionally we analyze the mean factor scores of trust in the six speakers on climate change to determine which group is trusted most in our participants.

Method

- Recruited 500 Amazon’s Mechanical Turk workers (MTurk) who reside within the United States through CloudResearch’s approved participants.
 - Participants underwent data quality checks to ensure higher-quality data.
- To increase the accuracy in our results, we filtered 15 climate change deniers and used the Mahalanobis distance on each participant to eliminate 14 multivariate outliers.
- 471 participants were left after filtering, the participant demographics included:
 - 268 males, 201 females, and 2 non-binary individuals.
 - Ages ranged from 19 to 76 years ($M = 39.76$, $SD = 11.89$).
 - 390 participants identified as Caucasian/White, 41 as African American/Black, 24 as Asian, 4 as Native American, 5 as Native Hawaiian/Other Pacific Islander, and 6 as other.
- One questionnaire was used for our study
 - The Climate Change Trust Scale (CCTS)
- We then conducted 3 confirmatory factor analyses on the CCTS.
 - 1-factor model, 2-factor model, and 6-factor model. (See Figure 3, Figure 2, and Figure 1 respectively)
 - Each model analyzed the relationship between the indicators and factors regarding a group’s trust in climate change speakers.
 - Assessed model fit using four different fit indices: The Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR).
- The mean factor scores for the six factors in the six-factor model were also calculated.

Six-factor model was the best fit for the Climate Change Trust Scale



Results

- All fit indices together suggest that the six-factor model is the a great fit for data presented in the Climate Change Trust Scale.
 - six-factor model (CFI = .999, TLI = .999), (RMSEA = .012, SRMR = .041.)
 - two-factor model (CFI = .831, TLI = .790), (RMSEA = .160, SRMR = .178).
 - one-factor model (CFI = .831, TLI = .794), (RMSEA = .159, SRMR = .178).
- Mean scale scores for the speakers on climate change in the six-factor model
 - Scientists were trusted the most when compared to the five other speakers on climate change ($M = 3.98$).

Discussion

- Limitations:
 - Data was exclusive to United States MTurk workers and doesn’t encompass the diverse aspects of a global population.
- Implications:
 - If a population trusts one source over another, that may impact the way climate change information is spread and received and could impact the focus of climate change information sharing.
- Future Research:
 - Can look at different aspects of the population such as age, education, workplace, socioeconomic status, and nationality to improve generalizability to other populations.

Figure 1
Six-Factor Model

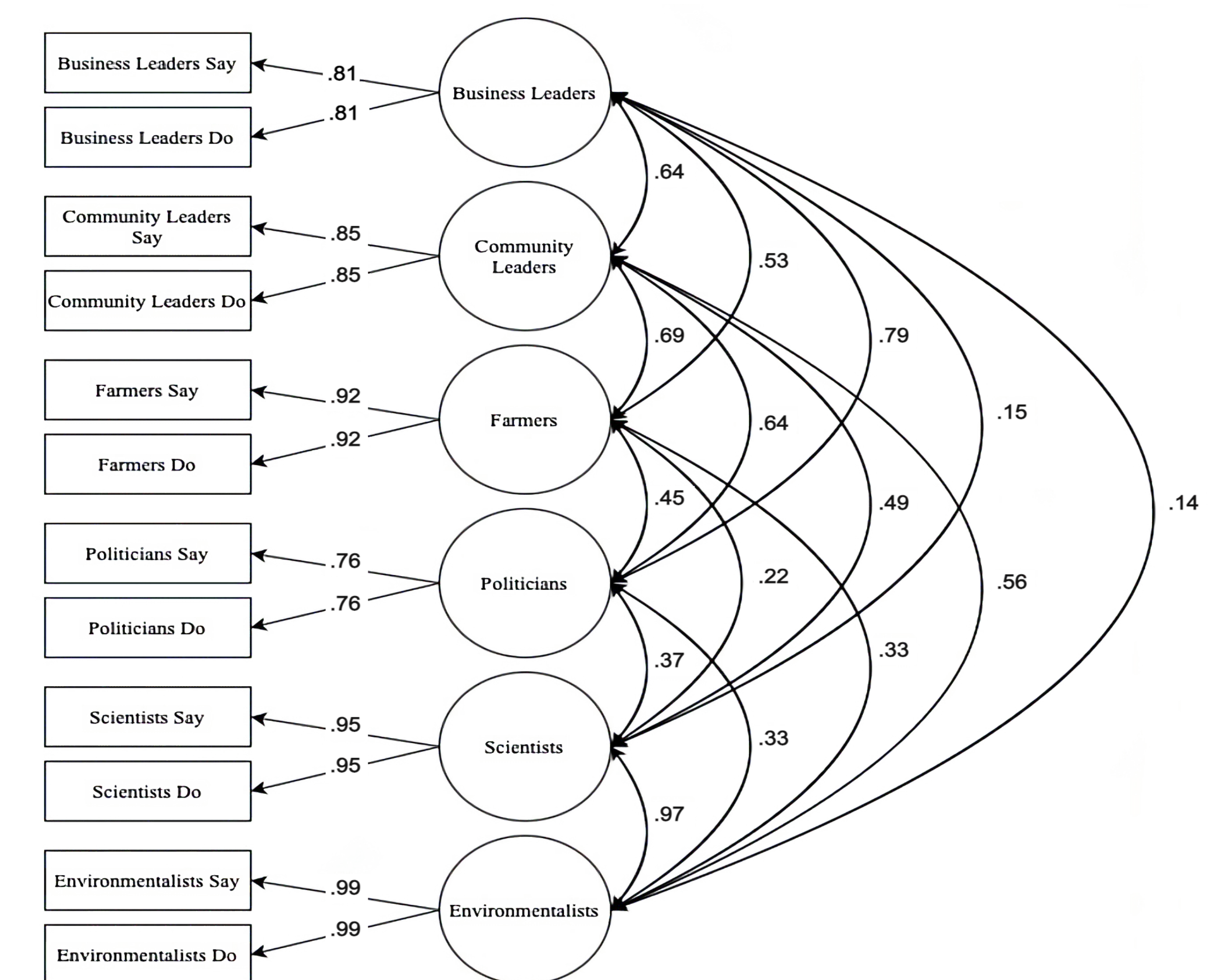


Figure 2
Two-Factor Model

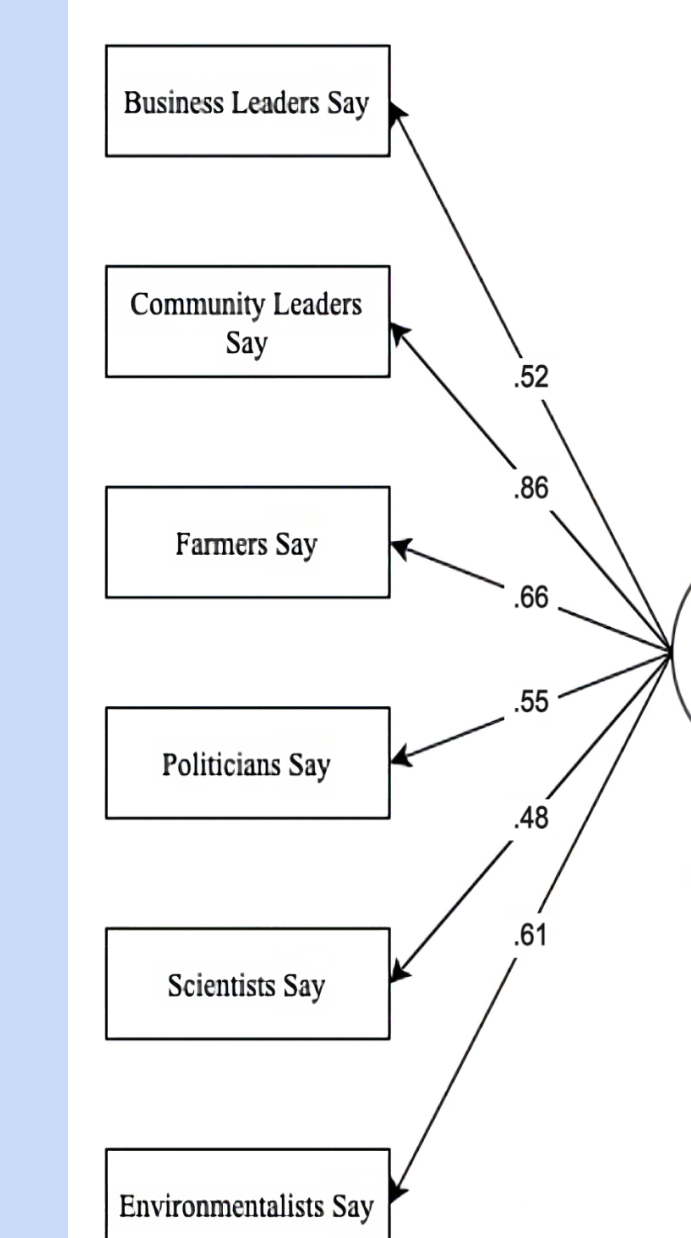


Figure 3
One-Factor Model

