Using a Large Language Model to
Choose Effective Climate Change Messages

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Abstract
Prior research has demonstrated that climate change communication is an effective way to increase public understanding and engagement. However, an effective communication strategy can require an extensive longitudinal study to segment an audience and conceive of messages that might convince them. We assess the capability of GPT-3.5-Turbo to group an individual and choose an effective climate change message based on survey information about an individual and prompt guidance. We observe that it, with a significant bias, can match individual profiles to groups and select messages based on an individual profile.

Supplementary Material
Prompts
profile-generation Prompt
1 You will be given someone’s answer to a survey.
2 Provide a profile of this person in terms of who they are, what they may believe in, and their possible stances regarding climate change.
3 Do not extrapolate your own views on the subject but only what you can imply for the answers to the survey. Be as accurate as possible and try to make links between each answer to provide a comprehensive and global profile.
4 Include the base information about the person, and extrapolate from their answer their possible views on climate change, but not include the answers from the survey.
5 Write your profile as if you were describing a person. Do not write it as a list of characteristics.

Group-assessment Prompt
1 You goal is to assess what someone would have answered to a survey regarding climate change.
2 To do so you will be given the person’s profile tagged as <PROFILE>, the survey question <QUESTION> and the multiple choice answers <ANSWERS> that you need to select.
3 Infer from the profile how the person described will answer to the provided question.
4 Base yourself solely on what is included in the profile. DO NOT assume that the person is already familiar with the climate change issue if you do not have good reason to believe so.
5 Provide your answer in JSON format with your reasoning using the key "reason," and the selected answer with the exact same formulation as the one provided in <ANSWERS> using the key "ans".

Example of output:
{"reason": "This answer", "ans": "chosen_anwser"}

message-choice Prompt
1 Your goal is to assess which message might induce to a targeted person the most change in belief and action towards a better awareness of climate change issues.
2 You will be given two messages about climate change, tagged as <MSG1> and <MSG2>...
Provide, which message, out of <MSG1> and <MSG2>, might have the biggest impact on the person described in <PROFILE>. To do so, base yourself on what you know from the person, what their current beliefs and stances might be, to chose the most appropriate message. Base also your thinking on what the person might know or not know about climate change already, and what the person might want to hear considering his/her current beliefs.

Provide your answer in JSON format using the key "answer" to provide your answer, that can be either "1" for <MSG1> or "2" for <MSG2>, and using the key "reason" to explain how you chose your answer from both messages.

Example of output:
{"reason": "I chose message 1 because it has this in it that might more appeal to this in the person’s profile whereas message 2 had this which does not fit as well.", 'answer': "1"}

A: Personal Information
- gender
- age
- educ
- income
- race
- ideology
- party
- region
- religion
- service_attendance
- marit_status
- employment
- house_type
- house_own

B: Group-indicating questions
- "How much do you think global warming will harm future generations of people?"
- "How worried are you about global warming?"
- "How much do you think global warming will harm you personally?"
- "Assuming global warming is happening, do you think it is caused by. . . "
- "Do you think global warming is happening?"

C: Climate-related questions
- How much do you support or oppose to regulate carbon dioxide (the primary greenhouse gas) as a pollutant
- How much do you support or oppose that electric utilities should produce at least 20%
- How much do you support or oppose funding more research into renewable energy sources, such as solar and wind power.
- How much do you support or oppose setting strict carbon dioxide emission limits on existing coal-fired power plants to reduce global warming and improve public health. Power plants would have to reduce their emissions and/or invest in renewable energy and energy efficiency. The cost of electricity to consumers and companies would likely increase.
- How often do you discuss global warming with your family and friends?
- About how often do you hear about global warming in the media (TV, movies, radio, newspapers/news websites, magazines, etc.)?

Messages sources
- [5] (4),
- [2] (16),
- [1] (18),
- [4] (32),
- [3] (90),
Confusion Matrix (RQ.1)

Figure 1: Confusion Matrix for all Groups

References


