Research Poster

Describing the Relationship between Trust in Science and Support for Climate Change Policy

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Introduction and Need for Research

Climate change has been described as a change in climate patterns attributed to increased levels of atmospheric carbon dioxide (Oxford Dictionary, 2020), and it has been cited as the "most significant of the five primary adaptive challenges" that threaten human wellbeing, agricultural production, and global sustainability (Andenoro et al., 2016). As climate change threatens the agricultural industry, and initiatives are sparked for sustainability, there is an increasing need for policy support to mitigate the effects of climate change. The USDA (United States Department of Agriculture) and other organizations are in support of efforts to reduce or alleviate the effects of climate change through policy support; however, sustainability efforts within the agricultural industry are dependent on the public's understanding and opinion of climate change in policy and decision-making (Eigenbrode et al., 2014). Currently, there is a need for a discussion revolving around trust in science (Nadelson et al., 2014), and how it can impact decisions on policy efforts.

Conceptual Framework

An essential component in the relationship between scientists and the public is trust (Rumble et al., 2020). Trust encapsulates personal belief and/or knowledge in the dependability and honesty of situations, ideas, institutions, and people (Simpson et al., 1989). Trust in science and its relation to policymaking "has grown ever more important in recent years, in parallel with the dramatic increase in the complexity and uncertainty of the ways in which science and technology interact with society and economy" at the local, national, and global levels (Arimoto & Sato, 2012). To meet society's current and future challenges, it is important to evaluate the public's trust in science and their acceptance of scientific topics and to determine how they could potentially influence policy decisions (Rumble et al., 2020). Telg et al. (2018) indicated a dominant theme of climate change acceptance was trust, and lack of trust with scientists and media may influence future acceptance and policy support. Trust in science within the public could potentially be increased through exposure to science-based education, communication, and engagement (Nadelson et al., 2014). If agricultural educators and communicators make advancements in educating the public and encouraging engagement in science, a deeper public trust in science could be instilled. If the public develops a stronger trust in science, it could potentially allow them to be more supportive of climate change and sustainability policy efforts (Sanders et al., 2022). The purpose of this study is to determine the relationship between perceived trust in science and climate change policy support.

Methods

An online survey instrument was used to examine Texas residents' opinions on science trust and their support for climate change policy. Qualtrics is a third-party company that was consulted to gather a non-probability sample of Texas residents 18 years or older and match census data for community type and age. The participants in the sample were presented with questions to measure their perceived trust in science and support of climate change and sustainability policy. Previous researchers have utilized non-probability sampling techniques to make population estimates (Baker et al., 2013), and it has previously been used to explore and examine public opinion on emerging issues (Lamm & Lamm, 2019). This sampling procedure is appropriate due to increased internet access, low sampling costs, and ease of reaching members of the population (Lamm & Lamm, 2019). A total of 486 responses were collected in November 2021 that were usable. Science trust was measured using an adaptation of the Nadelson et al. (2014) trust in science scale (a = .86) with nine, 5-point

Likert-type items. Policy support was measured by assessing the respondents' support of climate change mitigation policies (Nadelson et al, 2014). To do so, the respondents were asked a series of 5-point Likert scale items (1 = *Strongly oppose*, 2 = *oppose*, 3 = *unsure*, 4 = *support*, 5 = *Strongly support*) to the question "To what degree do you support or oppose the following policy proposals." After data were collected for this study, all data were exported to SPSS Version 28. Data were analyzed via descriptive statistics and correlations following Field's (2018) statistical procedures.

Results

A Pearson correlation was conducted to assess the linear relationship between trust in science and each of the support toward climate change policy statements. As seen in Table 1, we found substantial, significant correlations between trust in science and each policy statement (Kotrlik et al., 2011).

Table 1

Intercorrelations for Trust in Science and Support for Climate Change Policy

Measure	1	2	3	4	5
1. Trust in Science	-				
2. Regulate Carbon Dioxide as a Pollutant	.523**	-			
3. Require electric utilities to produce at least 20% of electricity from solar, wind or other renewable energy sources	.516**	.626**	-		
4. Require automakers to increase fuel efficiency of cars, trucks, and SUVs	.498**	.584**	.681**	-	
5. Fund more research into renewable energy sources	.517**	.576**	.576**	.602**	-
6. Provide tax rebates for energy efficient vehicles, solar panels	.550**	.600**	.502**	.553**	.703**

Note: ** Correlation is significant at the .01 level

Conclusions, Implications, and Recommendations

Although academics in agricultural communications and education have begun to research the topic of climate change and sustainability policy, there has been little research to describe the impact of trust in science and how it impacts policy (Andenoro et al., 2016). These measures allowed us to understand how the respondents' level of perceived trust in science impacted their support of climate change policy efforts. We found that if an individual views science as trustworthy, the more likely they are to support climate change and sustainability policy. Moving forward, it is recommended that agricultural communicators and educators develop strategies to enhance the public's trust in science to generate support for climate change efforts in policy and government. Practitioners should implement educational programs and communication messaging focused on increasing trust in science. Communication strategies should highlight scientific research pertaining to agricultural practices and policy to present factual information that will reach the target audience. Furthermore, agricultural educators of all levels should emphasize the importance of research in curriculum to create a more scientific literate public. If the public develops a deeper trust in science, they will be more likely to participate in and support climate change and sustainability policy efforts.

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