Research Poster

Examining College Students' Trust in Sources for Scientific Information

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Introduction/ Need for Research

Scholars and citizens alike have noticed a growing divide between the opinion of scientists and the public on several topics considered "settled" in the scientific community. Examples include human-caused climate change, the efficacy of vaccines, evolution, and the safety of genetically modified foods (Cook et al., 2018; Dixon, 2016; van der Linden et al., 2015). Despite the consensus in the scientific community, many Americans hold contrary perceptions that defy the current scientific understanding. In response to this phenomena, practitioners and scholars have been determined to craft the most impactful messages that incite understanding or action (e.g., reduce carbon footprint, get vaccinated). When considering scientific topics, individuals rely on conduits like news media, interpersonal communication, or social media to learn about salient scientific issues or breakthroughs due to the limited first-hand experience most people have with the scientific process and seminal scientific work (Antilla, 2010; Nelkin, 1987). However, science communication from non-science communicators is ripe for various interpretations of the empirical scientific work with room for perpetuation of the scientific consensus and misinformation (Weingart & Geunther, 2016). Recently, scientists and their respective organizations (e.g., CDC) are taking to social media and being hosted as expert voices on news platforms to communicate directly with the public. This should be a positive note for science communication, as research has identified a consensus heuristic that represents the tendency to defer to the consensus of experts for understanding, particularly in cases of complex or unfamiliar information (Chaiken, 1980; Darke et al., 1998). However, this heuristic hinges on an individual finding the expert to be trustworthy.

Other scholarship has also acknowledged the key role trust plays in message processing when communicating science (Brewer & Ley, 2012; Cheng & Gonzalez, 2021; Robinson et al., 2020). Within agricultural education, efforts have investigated trust in sources and channels for policy engagement (Warwick et al., 2021), water-related information (Deward et al., 2018), and food safety (Whatley et al., 2005). In a time where misinformation runs rampant and distrust in scientific institutions is at an all-time high (Krishna, 2021), it's important to strategically craft messages from sources audience members trust to foster maximum message impact. The study at hand investigated college students' level of trust in sources for scientific information and addresses the National AAAE Research Agenda priorities one (public and policy maker understanding of agriculture and natural resources) and seven (addressing complex problems).

Conceptual Framework

Trust has been generally defined as "to rely on the truthfulness or accuracy of something" (Merriam-Webster, 2022). Renn and Levine (1991, p. 179) coined the term *trust in communication* to specifically refer to the concept of believing a message is "true and reliable and that the communicator demonstrates competence and honesty by conveying accurate, objective, and complete information." As Lee et al. (2005) said, trust "makes information processing more efficient" (p. 246). Understandably, individuals are more likely to process messages positively from a trusted source and are more likely to automatically refute information from untrusted sources (e.g., backfire effect: Kahan et al., 2011).

Methods

To measure trust in scientific sources, a Qualtrics survey was distributed through SONA, an online portal at Texas Tech University that connects students seeking extra credit with ongoing research projects. Data were collected from November to May 2022, with 105 usable responses. The data reported were part of a larger study investigating college students' perceptions of scientific communication due to the understanding that this age group has been and will continue aging in a society rampant with various portrayals of science communication. *Trust in source for scientific information* was measured by prompting, "Indicate the level of trust you place on the following sources regarding scientific information" for each source in Table 1 (1 = *completely distrus*t, 5 = *completely trust*). Data were analyzed using descriptive statistics in SPSS. Real limits were statistically established to categorize means as follows: 1-1.49, distrust; 1.5-2.49, somewhat distrust; 2.5 - 3.49, neither distrust nor trust; 3.5 - 4.49, somewhat trust; 4.5-5, trust.

Findings

Medical doctors, academic scientists, family members, the FDA, peers, and governmental scientists were all considered somewhat trusted. The CDC, industry scientists, and news reporters were neither trusted nor distrusted. Social media influencers and bloggers were considered somewhat distrusted.

Table 1

Average Trust in Source for Scientific Information (*N* = 105)

Source	M	SD
Medical Doctor	4.2	0.82
Academic Scientist, University Researcher, and Extension Agent	3.9	0.84
Family Member	3.9	1.04
U.S. Food and Drug Administration (FDA)	3.6	1.1
Peers, Friends, and Those in your community	3.6	0.91
Governmental Scientist (Scientists who work for government agencies such as the FDA, NASA, CDC, NOAA, USDA, etc.)	3.5	1.01
Center of Disease Control & Prevention (CDC)	3.3	1.24
Industry Scientist (Scientists who work for for-profit organizations such as Bayer, Pfizer, Tyson, Cargill, etc.)	3.1	1.11
News Reporter/Journalist	2.8	1.09
Social Media Influencers and Bloggers	2.3	0.98

Conclusions/ Recommendations

When communicating about scientific topics of high complexity and/or novelty, it is important that messages portraying the scientific consensus or the desired action be delivered from trusted sources or the messages could do more harm than good (Kahan et al., 2011). Furthermore, messages from trusted sources are more compelling. Considering that college students trusted medical doctors, academic scientists, and family members, these may be prime sources to deliver information around complex, controversial topics like genetically modified foods or climate change. Perhaps the relatively low trust in the CDC is a response to media coverage of the institution during the COVID-19 pandemic. Future research should investigate why people trust certain sources across specific scientific topics (i.e., climate change, vaccines, GMOs, livestock production).

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