Research Poster

Let's Talk it Out:
Exploring Moment-to-Moment Reactions to Scientific Information By Community Type

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Consumers rely on information presented by the media, friends, family, and others to shape their opinions about scientific information (Antilla, 2010; Nelkin, 1987). However, misinformation about agricultural and scientific topics has contributed to an increase of inaccurate understanding of these topics (Baerg, 2018; Robinson & Ruth, 2020; Speer, 2017). Disagreement with scientific information can lead to a general doubt of scientific practitioners and their processes (Chinn & Hart, 2021), and negative impacts on policy, legislative and market decisions (Conway & Waage, 2010). Trust, the conceptual framework, has been described as the "fundamental component of all relationships between the public and specific people or groups" (Rumble et al., 2020, p. 2) and has been established as a key component of science communication (Cheng & Gonzalez, 2021; Robinson & Ruth, 2020). Various demographic characteristics, such as education level and political ideology, impact the trust members of the public have in science (Hamilton et al., 2015; Kossowska et al., 2021). The type of community people reside in (i.e., rural, urban, suburban) is also a factor of science trust (Baker et al., 2021; Krause et al., 2019). However, prior studies did not explore community type impacts on agreement toward scientific information. The purpose of this study was to explore moment-to-moment response to information and examine how this agreement differed based on community type.

A convenience sample of college students (N = 43) was recruited to participate in a dial testing study. Participants first answered a demographic survey to identify community type (rural, suburban, urban). After, the study participants listened to a podcast episode that presented a debate between two speakers about genetically modified (GM) foods, where one speaker presented scientific misinformation, and the other speaker corrected it with credible sources. While participants listened to the podcast, they continuously adjusted the dial based on their level of agreement (0 = *completely disagree*, 100 = *completely agree*). Dial testing, or continuous response measurements (CRM), allows for researchers to monitor and track individual responses to media messages in real-time (Lawson et al., 2020) via a Perception Analyzer. Data were exported to Excel in 6-second segments and converted to baseline scores (50 – answer) (Lawson et al., 2020; Tarpley et al., 2020). Aggregate scores were visually inspected for critical moments. We found 10 critical moments, with seven positive and three negative critical moments.

Negative agreement was found regarding GM foods as not safe for human consumption and GM foods containing viruses. Positive agreement was found toward information about the scientific consensus agreeing GM foods are safe for consumption and GM crops removing pesticides and cars from the road. Further, all three groups showed positive agreement that there are large amounts of misinformation present. Between the community types, the largest difference in agreement occurred when the hosts discussed misinformation about negative environmental impact of GM crops, with rural audiences eliciting negative reactions.

These findings give strategic insight on how to communicate GM information depending on community type. Communicators should connect GM information to farming and ranching for rural audiences while for urban audiences the GM information should be connected to the environment. Future research should explore the role of demographic characteristics in science trust and strategic science communication.

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