# College Students' Perceptions of Their Own Ability Versus Their Peers' Abilities to Identify Fake News on Agricultural Topics

**Mary Katelynn Horton**
Graduate Assistant
806-834-5013
Mary.k.butler@ttu.edu

**Dr. Courtney Gibson**
Assistant Professor
806-834-8766
courtney.d.gibson@ttu.edu

**Dr. Laura Fischer**
Assistant Professor
806-834-0630
laura.fischer@ttu.edu

Department of Agricultural Education and Communications
Texas Tech University
Box 42131
Lubbock, TX 79409

**Dr. Todd Chambers**
Associate Professor & Associate Dean for Undergraduate Affairs
806-834-5712
todd.chambers@ttu.edu

College of Media & Communication
Texas Tech University
Box 43082
Lubbock, TX 79409

## Introduction and Literature Review

Misinformation and the misunderstanding of information have long been a struggle for the agricultural industry. However, with the rise in popularity of the term "fake news" comes an opportunity to research how another form of false information plays a role in the public's perception of agriculture. Prior research on the phenomenon of fake news on social media shows that it spreads both faster and farther than the truth (Pierri & Ceri, 2019), and it takes six times as long for the truth to reach the same amount of people as fake news (Vosoughi et al., 2018). For the purpose of this study, we use the definition of fake news provided by Lazer et al. (2018) who define fake news as "fabricated information that mimics news media content in form but not in organizational process or intent" (p. 1094). To date, there has been little to no research done on how fake news plays a role in the agricultural industry.

The public's perception of agriculture is already uneasy. In 2016, a Pew Research Center study found that 50% of people who said they had heard or read a lot about genetically modified, or GM, foods believed that they were "worse for one's health" (Funk & Kennedy, 2016). This example shows the misunderstanding of traditional agricultural practices, which sets the stage for fake news to exploit these already controversial aspects of agriculture. The lack of existing research on fake news in agriculture makes it even more important to develop a basis for understanding how fake news can play a part in the public's perception of the agricultural industry. To begin doing so, we need to understand where people stand when it comes to fake news identification. Do people believe they can identify fake news about agriculture? Do they believe that others can do the same? To answer these questions, we will use the Dunning-Kruger effect, social desirability bias, and direct versus indirect questioning. In line with Priority Area 3, understanding perceptions of ability to identify fake news could lead to a workforce that is better prepared to address the unique challenges caused by this issue (Stripling & Ricketts, 2016).

## Conceptual Framework

The Dunning-Kruger effect states that people tend to overestimate their ability to perform tasks they are incompetent at (Kruger & Dunning, 1999). Similarly, social desirability bias is the "systematic error in self-report measures resulting from the desire of respondents to avoid embarrassment and project a favorable image to others" (Fisher, 1993, p. 303). Because fake news can be such a polarizing topic, people may be unwilling to admit, or be totally unaware of, their true level of susceptibility to it. The direct versus indirect questioning technique described by Lusk and Norwood (2010) and Fisher (1993) was used in this study to measure the differences between participants views about themselves and others. This technique involves asking the participants about their personal opinions (direct questioning), as well as what they think other people's opinions are (indirect questioning). Lusk and Norwood (2010) stated that direct questions require respondents to "make a trade-off between being honest and 'looking good'" (p. 554), while indirect questions do not.

## Purpose and Research Questions

This study sought to discover how well college students felt they could identify fake news about agricultural topics on social media versus how well they felt their peers could perform at the same task. The following research questions guided this study: (RQ1) How well do college students think they can identify fake news on agricultural topics? (RQ2) How well do college students think the average college student can identify fake news on agricultural topics?

## Methods

Participants in this study were sampled from a population of 50 graduate students in the Department of Agricultural Education and Communications at Texas Tech University. Twenty-eight students participated in the study (response rate = 56%). A Qualtrics survey questionnaire was sent via email, which asked four direct (Cronbach's alpha = .73) and four indirect (Cronbach's alpha = .84) questions adapted from Lusk and Norwood (2010) about how well the respondents felt they could identify fake news and how well they felt the average college student could identify fake news. The questions were as follows: Direct – I believe that I can identify fake news by myself, I believe that I can post/share facts instead of fake news, I am likely to fact check stories before sharing them on social media, I believe that I am extremely good at identifying fake news articles on social media; Indirect – I believe the average college student can identify fake news by themselves, I believe the average college student can post/share facts instead of fake news, The average college student is likely to fact check stories before sharing them on social media, and I believe the average college student is extremely good at identifying fake news articles on social media. The responses to these questions were measured using a Likert scale from 1 = *strongly disagree* to 5 = *strongly agree* and then compared using means, standard deviations and a paired samples t-test using SPSS 26.

## Results

The research questions sought to compare students' perceptions of their own ability versus their perceptions of others' abilities to identify fake news. To compare the results of the direct and indirect questions, we first examined the means and standard deviations of the data. The difference between students' self-perception ($M = 4.35$, $SD = 0.57$) and other-perception ($M = 2.94$, $SD = 0.80$) was substantial. Because of this, we conducted a paired samples t-test, with an alpha level set *a priori* at .05. The paired samples t-test yielded the result that the difference between students' self- and other- perceptions was significant, $t(27) = 8.08$, $p < .01$, $d = 2.03$.

## Conclusions and Recommendations

The data showed a significant difference between participants' perceptions of their own and others' abilities to identify fake news. Participants consistently believed they were better than their peers at identifying fake news, and, as communicators, we should be concerned about this. In an online environment where fake news spreads faster than truth (Pierri & Ceri, 2019), we must adapt and learn if we want a better, more informed public opinion that is based on fact and not rumor. The questions that arise from this data are who determines what is truth and how do we get people to question their own ability to identify fake news? We first need to recognize that we may all be more susceptible to fake news than we think, and it is vital that we do a better job of training ourselves and others to recognize fake news in the future.

This research was performed as part of a pilot study with only 28 responses. The small sample size means that the results are not yet generalizable to a larger population; however, we are curious to see how these measures perform in future research where we can further explore the topic of fake news in agriculture. Recommendations for future research include going a step beyond the presence of the Dunning-Kruger effect and social desirability bias and looking at how this belief that one is better than their peers at identifying fake news impacts their willingness to share fake news with others. As for practitioners, it is recommended that they keep in mind the power of social desirability bias and the Dunning-Kruger effect when reading the news and consider new information carefully.

## References

Fisher, R. J. (1993). Social desirability bias and the validity of indirect questioning. *The Journal of Consumer Research, 20*(2), 303-315. doi:10.1086/209351

Funk, C., & Kennedy, B. (2016, December 1). *The new food fights: U.S. public divides over food science.* https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2016/11/PS_2016.12.01_Food-Science_FINAL.pdf

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it. *Journal of Personality and Social Psychology, 77*(6), 1121-1134. doi: 10.1037/0022-3514.77.6.1121

Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M.J., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S. A., Sunstein, C. R., Thorson, E. A., Watts, D. J., & Zittrain, J. L. (2018). The science of fake news: Addressing fake news requires a multidisciplinary effort. *Science (American Association for the Advancement of Science), 359*(6380), 1094-1096. doi: 10.1126/science.aao2998

Lusk, J. L., & Norwood, F. B. (2010). Direct versus indirect questioning: An application to the well-being of farm animals. *Social Indicators Research, 96*(3), 551-565. doi: 10.1007/s11205-009-9492-z

Pierri, F., & Ceri, S. (2019). False news on social media: A data-driven survey. *SIGMOD Record, 48*(2), 18-27. doi: 10.1145/3377330.3377334

Stripling, C. T. & Ricketts, J. C. (2016). Research priority 3: Sufficient scientific and professional workforce that addresses the challenges of the 21st century. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds), *American Association for Agricultural Education national research agenda: 2016-2020.* (pp. 29-35). Gainesville, FL: Department of Agricultural Education and Communication.

Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science (American Association for the Advancement of Science), 359*(6380), 1146-1151. doi: 10.1126/science.aap9559