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Agricultural Scientists' Perceptions of Working with Reporters

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Agricultural Scientists' Perceptions of Working with Reporters

Abstract

Mass media is the main source of scientific information for most Americans, but inaccuracy of reporting has threatened the public's understanding of science. Perceived media bias and fake news has also made the public skeptical of the media, and scientists' perceptions are no different. Because scientists are the most trusted source for scientific information in America, it is important they remain willing to work with the media. This study used the Theory of Planned Behavior (TPB) to explore scientists' perceptions of working with reporters, including their attitude, subjective norms, behavioral control, and intent to engage with the media in the future. In-depth interviews were conducted with 13 tenure-track faculty at the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) in spring 2018. These participants represented low, moderate, and high communicators. The findings from this study indicated mostly negative attitudes toward reporters due to skepticism in their ability to accurately report science. Behavioral control was also limited due to time and ability constraints, but participants recommended trainings as ways to increase behavioral control. Subjective norms were somewhat mixed, with some positive norms from mentors but perceived negative norms from the public. Despite negative attitudes toward reporters, intent to engage with the media was mixed. However, subjective norms and behavioral control were often discussed as reasons to not engage with reporters. The findings from this study offered recommendations for both practice and research to help foster positive relationships between scientists and reporters.

Keywords

scientists, media, reporters, science literacy, theory of planned behavior

Cover Page Footnote/Acknowledgements

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Introduction

People need to be scientifically literate so they can make informed decisions, engage in civic and policy discussions, and support economic productivity related to science (National Research Council, 1996). While most Americans rely on news media to learn about science, the ability for the media's coverage of science to increase science literacy is highly dependent on the accuracy of the information being reported (Gallup, 2020; Gottfried & Funk, 2017). There are science journalists who specialize in reporting accurate stories for lay audiences, but oversimplification of science can sometimes skew the implications of the research and provide audiences with a false understanding (Brownell et al., 2013). Inaccuracy of science reported in the news has been documented over several decades, with Tankard and Ryan (1973) discovering that more than 90% of scientists identified errors in news reports covering their research, and MacDonald and Hoffman-Goetiz (1993) were only able to identify 2.3% of newspapers covering cancer research to be free of mistakes. Recent research has indicated the accuracy of scientific information reported in the media has not substantially improved; however, the inaccuracy of information appeared more closely linked to omission of information opposed to errors (Chang, 2014). In addition to inaccurate information being shared, there is the rising issue of fake news as well (Scheufele & Krause, 2019).

Americans have become increasingly more skeptical toward the media due to past misinformation that has been shared or the perceived bias presented in the stories (Gallup, 2020). By 2020, less than half of American adults believed journalists acted with the best interest of the public in mind and 70% believed news organizations would try to cover up any mistakes they made in reporting (Gottfried et al., 2020). Following the 2021 election and the emergence of COVID-19, trust in the media plummeted with a little more than half of Americans believing journalists were intentionally misreporting facts to skew opinions and that news organizations were prioritizing supporting a political agenda opposed to reporting the news (Salmon, 2021). With the emergence of misinformation and fake news in the media, coupled with the public's erosion of trust in journalists and reporters, research has found the public struggles to identify topics that have reached scientific consensus, like the safety of genetically modified food and the cause of climate change (Funk et al., 2015). This lack of understanding related to agricultural sciences could have dire consequences for issues like food security and climate change if people are not able to find and trust accurate information reported in the news.

This skepticism of the media has not been confined to lay audiences, and scientists have expressed similar concerns (Besley & Nisbet, 2011). Scientists' skepticism of the media, paired with their already low confidence in ability to communicate research (Brownell et al., 2013), could lead to serious implications related to science literacy if scientists are no longer willing to work with the media. When it comes to learning about scientific information, most Americans place the greatest amount of trust in scientists (Funk et al., 2019) and receive most science information from the news media (Gottfried & Funk, 2017). Therefore, it is critical for scientists to continue engaging with the media in the future to address science literacy issues and combat science misinformation in the United States. However, scientists' skepticism toward reporters' ability to accurately report science (Besley & Nisbet, 2011) may negatively influence scientists' intent to work with the media in the future. Reporters and scientists will need to have a good working relationship with one another if they hope to share accurate stories of science with the public (Brownell et al., 2013).

Agricultural communication practitioners need to understand scientists' perceptions of working with reporters and the media to best support these science communication efforts. Additionally, agricultural communications educators will need to understand this issue to best prepare future communicators who will work closely with scientists to share their research. Therefore, the purpose of this study was to explore agricultural scientists' perceptions of working with reporters and the media.

Theoretical Framework

The theory of planned behavior (TPB; Ajzen & Fishbein, 1980) provided the theoretical framework for this study to understand scientists' perceptions and experiences related to working with reporters. The theory proposes that intent to engage in a specific behavior is dependent on an individual's attitude toward the behavior, subjective norms related to the behavior, and perceived behavioral control for successfully engaging in the behavior (Ajzen, 2011). Within the context of this theory, attitudes describe how favorable or unfavorable people view a behavior, while subjective norms account for how an individual perceives others to approve or disapprove of the behavior (Ajzen & Fishbein, 1980). Behavioral control describes a person's belief that they can successfully accomplish the behavior (Ajzen, 1988). Positive attitudes and perceptions of subjective norms along with high perceived behavioral control can lead to strong behavioral intent, which is linked to actual behavioral engagement (Ajzen & Fishbein. 1980).

Past research has supported that attitude, behavioral control, and norms were predictive of engagement in broad science communication activities (Besley et al., 2018; Dudo, 2012; Dunwoody et al., 2009; Poliakoff & Webb, 2007). Specifically, scholars have concluded that attitude toward science communication (Martin-Sempere et al., 2008; Poliakoff & Webb, 2007) and general enjoyment for engagement (Besley et al., 2018) positively influenced behavioral intentions. Additionally, past research has found scientists to have low levels of perceived behavioral control when it comes to science communication. Poliakoff and Webb (2007) identified lack of time as a major contributor to scientists' public engagement. Scientists have also found it difficult to even identify appropriate newspapers to share their research (Bentley & Kyvik, 2010), which would also lower their perceived behavioral control. Lack of training related to science communication would also likely impact perceptions of behavioral control (Brownell et al., 2013). While attitudes and behavioral control have been linked to engagement in science communication, the influence of subjective norms on the behavior is mostly inconclusive (Dudo et al., 2018; Dudo et al., 2014; Lundy et al., 2006). Copple et al. (2020) concluded that subjective norms likely had a limited influence on scientists' engagement in science communication.

While these studies broadly explored scientists' engagement in science communication, there have been studies that specifically explored engagement with reporters and the media using TPB variables. Researchers have concluded that scientists are skeptical of reporters (Besley & Nisbet, 2011) and are concerned of being misrepresented in the news (Corley et al., 2011). These findings indicate negative attitude and low behavioral control, which could negatively impact intent to engage in the future (Ajzen & Fishbein, 1980). However, research has found scientists were willing to receive media training if it would help increase public understanding of their discipline (Lundy et al., 2006), which would likely increase their perceived behavioral control. Additionally, Besley et al., (2018) linked behavioral intent to work with the news media to career-stage and gender, but concluded norms were not predictive of engagement. The previously mentioned studies were mostly quantitative and did not necessarily utilize the entirety

of the TPB to guide the analysis. Therefore, there is an opportunity to further explore scientists' intent to engage with the media using the TPB and one-on-one interviews. These in-depth findings can provide researchers and practitioners with a nuanced understanding of scientists' relationships with reporters, which would help facilitate effective and accurate science stories in the media.

Purpose and Objectives

The purpose of this research was to explore agricultural scientists' perceptions of working with reporters and the media. The following objectives guided this study:

1. Describe participants' attitude, subjective norms, and behavioral control related to working with reporters; and
2. Describe participants' intent to work with reporters in the future.

Methods

This study was part of a larger research project (Ruth et al., 2019; Ruth et al., 2020; Ruth et al., 2021) that used a mixed-methods research design to explore tenure-track, land-grant faculty's engagement in science communication. The following definition for science communication was shared with all study participants, "for the purpose of this study, science communication is when researchers engage in meaningful communication with the public about their science." However, this paper will focus specifically on faculty engagement with news media as the channel for science communication. News media includes any form of mass media focused on providing information to the public, including television, radio, and newspapers.

The research project utilized an explanatory sequential design, where quantitative data were collected in phase one, and qualitative data were collected in phase two to explain the quantitative findings (Creswell & Plano Clark, 2011). Additionally, the quantitative phase was used to identify specific groups of interest for purposive sampling of participants in the qualitative phase (Creswell et al., 2003; Morgan, 1988; Teddlie & Tashakkori, 1998). This purposive sampling procedure was used to ensure that interview participants represented varying levels of engagement in science communication opposed to only high communicators who would be more likely to engage in this research.

The data reported in this paper come from the qualitative phase of this study and have not been previously reported. The TPB provided the theoretical lens for data analysis, which has been described in detail later in the methods section. While TPB is commonly used for quantitative research, it has been applied to qualitative approaches as well (Eck et al., 2021; Nolan-Clark et al., 2011), making it an appropriate framework for this research.

Study Context

Tenure-track faculty in the Institute of Food and Agricultural Sciences at the University of Florida (UF/IFAS) were the population of interest for this study. UF is a top 10 U.S. public university (Top Public Schools, 2021) and land-grant university, so faculty would be expected to engage in some type of outreach effort regardless of official appointment (Association of Public and Land Grant Universities [APLU], 2012). At the time of the study in 2017/2018, UF/IFAS was home to 51,000 students and 569 tenure-track faculty across more than 30 departments (UF/IFAS, 2013). Despite UF/IFAS' $108.7 billion annual contribution to Florida's economy

(UF/IFAS, 2013), the Florida governor cut $6 million for the 2017/2018 fiscal year (Rusnak, 2017). Additionally, a professor in UF/IFAS had recently come under public scrutiny after engaging in science communication activities related to genetically engineered food, which also received negative press coverage from publications like *The New York Times* (Kroll, 2015). The timing of this research should also be noted - the qualitative data for this study were collected in spring 2018. According to Jones (2018), 45% of Americans trusted the media in 2018, which was the highest it had been since 2009 after an all-time low in 2016, where trust in the media dropped to 32%. By 2020, trust in the media was holding steady at 40% (Brenan, 2020) before declining once again in 2021 (Salmon, 2021). This context should be considered when interpreting the findings from this study.

Data Collection

As previously described, data were collected in two phases for this research project, but only the qualitative data have been reported in this paper. Because the quantitative phase informed the qualitative phase, the quantitative data collection has also been described. An online survey instrument was distributed to a census of tenure-track faculty (N = 569) at UF/IFAS during phase one of this study, and the survey instrument included questions about respondents' attitudes and past experiences related to science communication. A total of 180 respondents completed the survey and were categorized into three different groups based on their survey responses: low communicators, moderate communicators, and high communicators. These groups guided a purposive sampling for the qualitive phase of the study (Creswell et al., 2003; Morgan, 1988; Teddlie & Tashakkori, 1998). This purposive sampling ensured a variety of perspectives would be represented in the interviews and provided additional context when describing the participants.

The communication groups were based on two questions to measure engagement in effective science communication: *frequency of science communication* and *quality of science communication*. To measure frequency of science communication, respondents were asked to report how often they had engaged in 15 different science communication activities over the past 12 months. Examples included delivering a presentation, speaking on a podcast, and giving a demonstration. The scale was as follows: *never* = 0, *1-2 times* = 1, *3-4 times* = 2, *5-6 times* = 3, *7-8 times* = 4, *9-10 times* = 5, and *11+ times* = 6. The responses were transformed into a count variable that could range from 0 to 90. *Quality of science communication* was measured with a 9-item, 5-point Likert-type scale (Cronbach's $\alpha = 0.77$) with the following labels: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree not disagree*, 4 = *agree*, and 5 = *strongly agree*. The scale was researcher developed and based on best practices recommended by the American Association for the Advancement of Science (AAAS, 2017). The average score of the nine items to measure quality of science communication (range of one to five) was multiplied by the frequency of science communication count measurement to create the *effective science communication* construct. This construct could range from 0 to 450, and the range from the survey sample was 0 to 181.56 (M = 55.72, SD = 38.16, n = 162). A detailed description of the scales and results have been previously reported (Ruth et al., 2020).

Groups for low, moderate, and high communicators were assigned based on the mean response of the sample for effective science communication. Moderate communicators were categorized as those having a mean between 17.56 and 93.88 (n = 104). Low communicators had scores below one standard deviation of the mean (M < 17.56, n = 26) and high communicators

were above one standard deviation of the mean ($M > 93.88$, $n = 32$). Respondents from each of these groups were purposively sampled to participate in follow-up interviews about their science communication. A total of 31 potential participants were invited to the follow-up interviews, and 13 from 10 different departments/academic units agreed to participate (41.9% participation rate). Despite reaching out to 14 different low communicators, only three agreed to an interview. Additionally, there were five high communicators and five moderate communicators who agreed to participate in the qualitative portion of this study. The participants in each communications group were also invited based on demographic characteristics in an effort to reflect the demographics of each group identified in the survey. A description of the demographics for the interview participants have been reported in Table 1.

Table 1
Description of Interview Participants

	High Communicators ($n = 5$)	Moderate Communicators ($n = 5$)	Low Communicators ($n = 3$)
Rank			
Assistant Professor	2	1	2
Associate Professor	1	0	1
Professor	2	4	0
Administrative Role[a]	2	3	0
Discipline			
Social Science	2	2	1
Basic Science	1	0	1
Applied Science	2	3	1
Average Appointment			
% Teaching	30	33	40
% Research	35	41	60
% Extension	25	32	0
Gender			
Female	3	1	2
Male	2	4	1

[a] Participants with administrative role could be any rank.

To provide greater context for the participants and to aid in the interpretation of the findings, the participant identification number along with individual characteristics have been reported in Tables 2, 3, and 4.

Table 2
Description of High Communication Participant Characteristics

	Participant ID				
	#5	#17	#88	#93	#158
Rank	Assistant Professor	Associate Professor	Professor	Professor	Assistant Professor
Administrative Role[a]	No	No	Yes	Yes	No
Science Discipline	Basic	Applied	Applied	Social	Social
Appointment					
% Teaching	30	60	0	60	0
% Research	70	20	30	20	35
% Extension	0	20	20	20	65
Gender	Female	Female	Male	Male	Female
Race	White	White	White	White	White
Age	47	53	45	43	44

[a] Participants with administrative role could be any rank.

Table 3
Description of Moderate Communication Participant Characteristics

	Participant ID				
	#9	#29	#143	#154	#188
Rank	Professor	Professor	Assistant Professor	Professor	Professor
Administrative Role[a]	Yes	No	No	Yes	Yes
Science Discipline	Social	Applied	Applied	Social	Applied
Appointment					
% Teaching	40	25	0	70	30
% Research	40	75	70	0	20
% Extension	20	0	30	30	50
Gender	Male	Male	Male	Male	Female
Race	White	White	Asian	White	White
Age	62	51	41	57	60

[a] Participants with administrative role could be any rank.

Table 4
Description of Low Communication Participant Characteristics

	Participant ID		
	#37	#133	#155
Rank	Assistant Professor	Assistant Professor	Associate Professor
Administrative Role[a]	No	No	No
Science Discipline	Basic	Social	Applied
Appointment			
% Teaching	40	40	40
% Research	60	60	60
% Extension	0	0	0
Gender	Female	Female	Male
Race	White	Asian	White
Age	35	40	46

[a] Participants with administrative role could be any rank.

Each interview lasted approximately one hour, and most were conducted in person. Two interviews were conducted via Zoom due the participant's location at an experiment station in another area of the state. Interviews were conducted until saturation was met (Strauss & Corbin, 1988). The interview guide followed a semi-structured format that asked questions about specific areas of interest informed by the quantitative phase, which included motivation to engage in science communication, past experiences with science communication, and values related to science communication. During the interviews, discussions about working with reporters emerged, and the interviewer asked follow-up questions related to these topics. All interviews were recorded and transcribed to aid in the analysis of the data.

Data Analysis

The TPB provided the framework for the analysis of the data. Similar to past studies using TPB (Nolan-Clark et al., 2011), *a priori* coding (Kuzel, 1999) was used to code data into four distinct themes: attitudes, subjective norms, behavioral control, and behavioral intent. A codebook was developed that reflected Ajzen and Fishbein's (1980) description of the TPB to assist the researchers in defining these themes. Two researchers with expertise in agricultural communications and public relations coded the interview transcripts, and Microsoft Excel was used to keep track of the codes. Coder training consisted of coding one interview from each of the three communication groups and comparing the thematic analysis of the transcripts based on the pre-defined TPB themes. Due to some inconsistencies in coding, the coders revised definitions in the code book to develop a shared understanding and consistent analysis. The final definitions in the code book were as follows:

- *Attitude:* Any reference of participants' attitude toward the media and reporters.
- *Behavioral Control:* Participants' perceived ability to be effective communicators, answer reporters' questions, or influence the final media story.
- *Subjective Norms:* How social approval/disapproval (in academia or with the public) would influence participants' decision to work with the media or reporters.

- *Behavioral Intent:* Participants' intent to work with the media and reporters in the future, by answering questions, engaging in interviews, or writing op-eds/press releases.

The two coders split the analysis of the interview transcripts, and memos were detailed during the analysis process to help keep track of the coding decisions. Additionally, peer debriefing was used to ensure the findings were supported by the data. These steps helped to increase the confirmability of this study (Creswell, 2013; Thomas & Magilvy, 2011). Credibility was increased by giving participants the opportunity to review the primary researchers' summary of findings as well as their transcripts (Lincoln & Guba, 1985; Stake, 1995). A detailed description of participants along with the context of the study have also been included to assist in the transferability of the findings (Creswell, 2013). However, the findings from this research are not generalizable outside the context of this study but may provide detailed understanding for scientists' perceptions of working with reporters and the media.

Researcher bias has also been described to aid in the credibility of this research (Merriam, 1988). The primary investigator has received three degrees from UF, which may have influenced interpretations of this data. Additionally, both coders teach science communication classes and run a publication course where students interview and write stories about faculty members' research. These experiences may also lead to biases in the implications and conclusions of this study.

Findings

The findings exploring participants' attitudes, behavioral control, subjective norms, and behavioral intent are detailed below.

Attitude

Attitude was coded as any reference of the participants' perception of reporters and the media. Most of the participants in the study shared attitudes of concern regarding the accuracy of information a reporter would use when reporting their research. Participant 29 (moderate communicator) said,

> I've had interviews where they're circling and setting up the most stupid, hypothetical situations to get me to say the sentence that they want me to say. Then, they take it completely out of context to support their story. I find that really annoying.

Participant 9 (moderate communicator) shared a similar attitude, stating "These reporters are always trying to get you to say something that's really gonna tick people off." The participants noted that reporters would "[come] in with a certain angle and filter any information you give them through that angle" (Participant 155 – low communicator). One participant summarized the participants' general attitude toward reporters, "Sometimes they're fine. Sometimes they're scary," (Participant 155 – moderate communicator).

Aside from concern about the angle a reporter might use to write a story, participants were also "astonished at how many reporters don't do their homework," (Participant 5 – high communicator). Participant 5 (high communicator) theorized, "I just don't think they are always getting in depth information about whatever that science topic is. I think a lot of these media

soundbites are… better than nothing, but it's not very substantial." To put it succinctly, "[Reporters] always get the story wrong in my experience. Always," stated Participant 88 (high communicator).

While participants said, "reporters want to generalize beyond what the researchers can say," (Participant 188 -moderate communicator), some believed this concern to be a hindrance at times too:

> I can totally understand why you'd feel really hesitant about working with a journalist…, but at the same time I feel like you should also accept the fact that you don't need to sound so smart all the time. You know what I mean? You need to sound okay with just being laid back or being more colloquial. Yes, as scientists we're trained not to be that way, but I think we need to untrain ourselves a little bit. (Participant 37 – low communicator)

Additionally, participants said that accuracy of the information being reported was threatened because reporters were "so tapped a lot of times, they don't have the time to go and do [research on these science topics]," (Participant 158 – high communicator). Conversely, Participant 17 (high communicator) perceived reporters' act of reaching out to scientists as them "really trying to get at what might be accurate."

While most of the participants perceived reporters to share inaccurate information, some of the participants did hold positive attitudes regarding their relationships with reporters. "I'm still good friends with several of the reporters that I worked with…. It's being as transparent, and up front, and honest as possible. I never really had a situation where somebody tried to put words in my mouth," shared Participant 158 (high communicator). Participant 5 (high communicator) shared a similar attitude toward the relationship, stating "Not only do I think scientists have to be better at interacting with the media, but the media has to be better at interacting with scientists."

Overall, participants' attitudes toward reporters and working with the media varied. Many participants were skeptical of reporters' ability to accurately report science, but others recognized reporters were working under tight schedules and appreciated their effort to find a source for the story. Additionally, some high communicators noted the importance of positive relationships between scientists and reporters.

Behavioral Control

Behavioral control reflected participants' perceived ability to be effective communicators, answer reporters' questions, or influence the final media story. Participants possessed mostly low behavioral control regarding how reporters shared stories about their research. Participant 17 (high communicator) explained this negative perception of control because "Chances are what [reporters] end up writing does not represent what I've said. I've been burned before." Participant 29 (high communicator) shared a similar perception, stating "speaking with journalists… is a lottery because you provide your side of the story, but you never know how they end up balancing it and how they angle it."

Lack of behavioral control was also discussed with scientists' ability to simply answer the questions the reporters may have. Time was a large factor influencing this perception. "There's never enough time. [Reporters] are on a deadline. They just want a sound bite. Then it doesn't come out well or I end up saying something that anybody could've said," stated

Participant 188 (moderate communicator). Participants 88 (high communicator) had similar feelings, saying "when the reporter calls you up and they're like, 'I need you to call me back by 3:00 pm today because I got this blah, blah, blah,' usually they're going to get [the story] wrong."

Despite these explanations for low perceived behavioral control, Participant 9 (moderate communicator) did identify ways to help better guide the story with a reporter, explaining how he kept a "set of notes" next to his phone with key talking points that allowed him to turn the interview "into what the message should be."

Some participants also recommended "better training on how to help scientists write press releases, how to create a media soundbite…and how to present themselves in a soundbite way to fit in with the current approach to media," (Participant 5 – high communicator) as a way to increase behavioral control to effectively work with reporters and the media. Participant 158 (high communicator) recalled "going to many, many trainings where … they brought in reporters who would literally stick a camera in front of our face, and we would have to react immediately, and then they would critique us on it. It was extremely helpful." To increase those perceptions of ability to work with reporters, Participant 9 (moderate communicator) also recommended "a certificate program or a minor program" to learn how to work with the media because "that's really where you get the most intensive training. Just attending a random workshop is not the same as getting a certificate." While the majority of participants expressed low levels of behavioral control for working with reporters, some were able to identify opportunities to increase perceptions of control with additional trainings and resources.

Subjective Norms

Subjective norms described how social approval/disapproval (in academia or with the public) would influence participants' decision to work with reporters/media. Some participants expressed positive subjective norms within academia. Participant 37 (low communicator) stated how she had a "positive experience" with a PhD advisor who "made me see the value of [working with the media]." Similarly, Participant 29 (moderate communicator) recalled

> I was lucky with my supervisors back when I did a PhD… they pushed me to write op-eds. I was really, really lucky because the day I submitted the press release for my thesis, there was a big trade hiccup in the salmon market. Some sort of government organization read the press-release, and based on my PhD, he immediately funded a project, which may well be the only thing that makes me a professor today rather than working in some agency somewhere.

When discussing subjective norms in the context of general society, there appeared to be negative perceptions. Participant 5 (high communicator) described the public response to a press release describing her sending an animal to space: "People also attacked the science saying, 'Why the heck do we need another animal in space? What's the value of it?' There were a couple blogs that were pretty harsh on the science." Other participants shared concern over similar responses from the public and not wanting "to attract unnecessary attention" with "hundreds of comments on something I have to deal with," (Participant 133 - low communicator). The recent incident with [faculty] was also cited as a reason not to engage with the media because "he's gotten death threats. Science communication can be dangerous," (Participant 17 – high

communicator). Overall, subjective norms were not discussed as often as attitude or behavioral control related to working with reporters, but participants did indicate these norms did influence their perceptions of working with reporters in the future.

Behavioral Intent

To assess behavioral intent, participants were asked how they would respond if they received an interview request from a reporter, and the responses widely varied. Some of the participants agreed that it was "important for us to engage with the media," (Participant 93 - high communicator) and "anytime media wants to talk to me I always say yes because I really think it's an important opportunity to reach out to the average person," (Participant 5 – high communicator).

Other participants agreed they would speak with reporters, but also expressed frustration or hesitation. Participant 88 (high communicator) said, "I'll still talk to them, but it's like, gosh, can't they get it right?" When discussing the inaccuracy sometimes reported in the news, Participant 155 (low communicator) explained, "I don't think it changes my willingness to sit and talk with people. I think I am far more careful about interjecting personal bias into any statements that I make."

Participant 17 (high communicator) expressed mixed feelings about her intent to work with reporters in the future, explaining "The last time, at least I swore I'll never do it again, but I'll probably end up doing it again." Other participants indicated they "avoided [reporters] as much as [they] could. Because [they] don't want to be misquoted," (Participant 154 – moderate communicator) or that they would say "talk to somebody else," (Participant 188 – moderate communicator) if they received an interview request. Some participants specifically referenced radio interviews, saying "I never have a talk with radio reporters any longer," (Participant 29 – moderate communicator) and "I've turned down radio interviews and things like that where I knew [the reporter had a certain agenda]," (Participant 158 – high communicator).

While most participants possessed strong behavioral intent, whether positive or negative, Participants 143 (moderate communicator) simply said, **"**I don't have any chance of working with the reporters outside of UF," when asked about his willingness to work with reporters in the future. Participants expressed a wide range of intent to work with reporters in the future, but the prevailing sentiment was they would work with reporters with some hesitation or skepticism.

Discussion & Implications

The purpose of this study was to explore agricultural scientists' perceptions of working with reporters and media using the TPB. While the qualitative nature of the study limits the generalizability of the findings, the TPB can provide a helpful lens to better understand the participants' perceptions of engaging with reporters. Consistent with prior research (Besley & Nisbet, 2011; Corley et al., 2011), the participants held negative attitudes toward reporters and were fearful their research would be inaccurately reported. There were also concerns that reporters would be biased in the coverage of their research, which reflected American's recent perceptions of distrust in the media (Gallup, 2020; Salmon, 2021). Part of this skepticism and distrust was linked to whether or not reporters had the knowledge to accurately report the information. However, some of the participants did express empathy for reporters who were covering numerous stories and indicated it was a good thing they even reached out for a quote. Additionally, some of the participants held positive attitudes toward reporters and emphasized

that relationships were key. Across all the interviews, past experiences appeared linked to attitude, and unfortunately, most of the participants expressed negative past experiences working with reporters.

Several different concepts emerged related to behavioral control, including a lack of time to answer questions, ability to answer questions, and professional development opportunities. The limited behavioral control related to lack of time to correctly answer questions was often discussed within the context of skepticism of the accuracy of news stories. These findings were consistent with past studies (Bentley & Kyvik, 2010; Lundy et al., 2006); however, some participants did recommend strategies, like writing down key messages, to help better control the stories reported in the media. Participants also recommended formal trainings to assist them in working with the media, which aligned with prior research (Lundy et al., 2006) and would increase perceived behavioral control.

Subjective norms did not come up as often as attitude or behavioral control during the interviews; however, positive subjective norms in academia typically coincided with positive attitudes toward working with the media during the discussion. Additionally, some participants discussed how negative subjective norms from the public made them question why they would ever want to engage with the media. This finding is counter to prior research that concluded norms likely did not have an influence on engagement in science communication (Copple et al., 2020). UF/IFAS faculty were likely aware of the negative press coverage a professor in the institute had received, which could have impacted their perceived subjective norms related to working with the media. There is an opportunity for greater exploration in how subjective norms and social environments can impact scientists' perceptions of working with reporters.

During the interviews, participants expressed a mixed intent to engage with reporters in the future. Most of the high communicators reported they would always talk to the media but expressed frustration with them and their ability to accurately report their research. Most of the moderate communicators indicated they would like to avoid speaking with the media if possible, and one even indicated they have no opportunity to speak with reporters outside UF, which appears untrue based on the responses from the other participants. It should also be noted there were limited quotes from low communicators in this study simply because they had not had substantial experiences with the media, and therefore had likely not formed strong opinions.

The findings from this study mostly supported past research (Besley et al., 2018; Dudo, 2012; Dunwoody et al., 2009; Poliakoff & Webb, 2007). While scholars had concluded attitudes were strong indicators of behavioral intent with science communication efforts (Martin-Sempere et al., 2008; Poliakoff & Webb, 2007), participants in this study indicated intent to work with the media can remain high despite negative attitudes. Personal values or additional internal/external motivators may have a greater influence on intent than simply attitude alone. Based on the TPB, the behavioral control noted in the study likely influenced attitudes toward working with reporters (Ajzen & Fishbein, 1980). Additionally, subjective norms would also influence intent (Ajzen & Fishbein, 1980), whether they were academic norms or social norms of the general public. Overall, this study demonstrated that scientists' relationship with reporters and the media have remained strained and concerns related to misinformation remain prevalent (Chang, 2014; MacDonald & Hoffman-Goetiz,1993; Tankard & Ryan,1973). However, participants still recognized the value of working with reporters, which can lead to many opportunities for strengthening the relationship between these two groups.

Recommendations

Because people rely on the media to learn about science (Gottfried & Funk, 2017), there is a need to ensure scientists continue to engage with the media to be the trusted source of scientific information for Americans. The findings from this study are not generalizable beyond UF/IFAS; however, the insights they offer provide several recommendations for both practice and research.

For Practice

Agricultural communications practitioners should consider these findings when they need to use scientists as sources for their stories. There are several ways practitioners can help to increase scientists' perceived behavioral control for working with the media. When time permits, reporters may want to ask scientists to fact-check their stories, or at least the sections describing the science/research, to ensure the information is accurately reported and to build trust with that scientist. Another way to foster a positive working relationship between reporters and scientists is to ensure there is transparency in the communication between the two parties and that reporters are giving scientists enough time to respond to their interview requests. While there may not always be time to delay a story to wait for an interview or to allow scientists to fact-check the science section of a story, these actions can help build a strong, working relationship between scientists and reporters that leads to accurate science stories shared in the news.

Additionally, agricultural communication educators can develop trainings to help scientists feel more confident in their ability to speak with the media. Focusing on communicating key points is one way to help scientists feel as though they possess more control of the story. Preparing scientists how to answer leading questions or controversial questions can also give them confidence in their abilities to work with reporters. As recommended by one of the participants, these trainings should include multiple sessions or classes to give attendees the chance to learn, apply, and reflect upon the materials over a sustained amount of time. Agricultural communications educators should also consider these findings when teaching their writing and journalism classes.

To help increase positive subjective norms associated with engaging with the media, graduate advisors should encourage their students to write short press releases or op-eds that detail their research and could be shared with public audiences. Similarly, advisors should encourage graduate students to enroll in classes or graduate certificates that promote science communication or media engagement to support both subjective norms and behavioral control. Because the participants in the study were concerned about public backlash, the communications teams at universities could articulate best practices to scientists for engaging the public and outline how they can support these individuals if they do experience a negative response.

For Research

Future research should replicate this study at other institutions to better understand how the TPB can explain scientists' intent to engage with the media. Additionally, using a mixed-methods approach and collecting quantitative data to further investigate the variables from the TPB would help to generalize the findings and make the research more robust. Specifically, norms related to academia and to the general public should be explored since these emerged separately during analysis. Structural equation modeling could be used with quantitative data to

better understand the direct and indirect effects of attitude, subjective norms, and behavioral control on intent to work with reporters and the media in the future.

This study focused on scientists, but there is an opportunity to explore reporters' intent to work with scientists as well. As some of the participants pointed out, the relationship between both reporter and scientist is important, so conducting interviews or collecting survey data from reporters can provide additional information to facilitate the relationship between these two groups. Another potential line of research would be to explore if and how graduate advisors mentor students about working with the media and what interventions would best support scientists to engage with the media in the future.

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