Perceptions of Science Communication by Professional Communicators

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Introduction

Scientific progress by itself is not enough to move society forward. As an example, measles was basically eradicated in the United States only to make a comeback because of declining vaccination rates (Patel et al., 2019). As the number of news outlets and journalists continue a decades-long decline, there is a need for science communication from reputable sources (Brownell et al., 2013; Simis et al., 2016). One of the areas to be addressed is the lack of training and resources available to new researchers (Bankston & McDowell, 2018). With social media dropping barriers between scientists and the public, there is an opportunity for researchers to fill a communication vacuum with evidence-based information (Voytek, 2017). Historically, science communication has depended on the knowledge deficit model, which purports that giving people information will improve their decision-making, but that model assumes the general public processes information the same way scientists do, which is not the case (Simis et al., 2016). Evidence by itself is not enough without understanding factors affecting audiences' ability and willingness to use the information (Longnecker, 2016). That model is also limited by scientists' lack of communication training (Brownell et al., 2013; Simis et al., 2016). Of the trainings that do exist, many show concepts and models of communication, but there is a need to provide scientists with hands-on practice in communication (Besley & Tanner, 2011).

Conceptual Framework

The narrative paradigm offers an alternative to the knowledge deficit model. In contrast to the assumption that people are rational beings, the narrative paradigm assumes people gravitate toward good stories and make decisions based on their background and circumstances (West & Turner, 2018). Rationality still exists in the narrative paradigm, but that rationality shifts to the story through coherence (i.e., internal consistency of the story) and fidelity (i.e., trustworthiness of the story). The narrative paradigm's strength in science communication is bolstered by the need to understand audiences and their needs when communicating research findings (Baram-Tsabari & Lewenstein, 2017; Bray et al., 2012; Dudo & Besley, 2016). The communication training the participants in this study engaged in was grounded in helping student scientists tell the story of their research.

Methods

Three two-hour science communication trainings were conducted in January of 2023 targeting student researchers at [university] in the [college of agriculture]. Communication professionals assisted the training so students could receive feedback from those actively engaging in science communication in their day-to-day work. Seven semi-structured interviews were conducted with communication professionals who participated in the sessions to get their perspectives on science communication and the trainings. The interviews were recorded to ensure accuracy. The interviews were then analyzed for common themes between participants.

Results

There were four key themes from the interviews: *defining science communication, importance of science communication, serving the science community*, and *potential of science communication trainings*. For *defining science communication,* nearly every participant gave a conceptually similar definition to science communication. It was generally defined as the process of translating or simplifying recent scientific developments for the purpose of educating the general public. There was a common assumption of low scientific literacy among members of the public,

which was used to justify translating research into digestible pieces of information like news articles and online videos. For *importance of science communication*, every participant made remarks about how important the science communication process was to healthy research institutions and a well-informed society. While they noted the public probably had a more limited perspective of what science communication was, they believed that well-practiced scientific communication could contribute to the development of society and its research institutions. For *serving the science community*, many of the communications professionals interviewed described their career experience and built skills as a motivator for their involvement in the science communication training. They wanted to serve new researchers by passing down the information and strategies they had gathered. For the final theme of *potential of science communication trainings*, all participants noted the potential of science communication trainings. The believed young researchers needed resources to develop communication skills as a part of today's scientific community. While the current training was limited in its scope to the college of agriculture, some noted the need for expansion to other colleges. Participants were split on the size of the trainings. Some noted a desire to increase the number of people in the training, while others noted that smaller group sizes may be more conducive to fostering organic conversations.

Conclusions

The participants stated a need for science communication, which is well documented in the literature (Brownell et al., 2013; Simis et al., 2016; Voytek, 2017). Underpinning that belief is their assumption that the public lacks scientific literature, which is also well documented (Besley & Tanner, 2011). In line with the narrative paradigm, the participants were making statements and recommendations based on the needs of the audience: simplifying information so it can be understood and delivering that information through a variety of channels (Baram-Tsabari & Lewenstein, 2017; Bray et al., 2012; Dudo & Besley, 2016; West & Turner, 2018). While science communication needs to improve (Bankston & McDowell, 2018; Besley & Tanner, 2011), a notable finding of this research is why communication professionals would engage in trainings that they do not personally benefit from. These participants were engaging in the training as a service to the student researchers but also with the expectation that improving science communication would provide tangible benefits to society and the research institutions.

Recommendations

As noted by many others, there is a need for increased and improved science communication training and resources, including assessment of those efforts (Bankston & McDowell, 2018; Baram-Tsabari & Lewenstein, 2017; Simis et al., 2016). For efforts that focus on hands-on experiences (Besley & Tanner, 2011), integrating communication professionals could prove beneficial, and this research helps the research community understand why those professionals would volunteer their time for trainings. As new trainings are developed and implemented, evaluation of those programs is needed to understand what tactics are most effective for delivering the trainings and for understanding the outcomes of those programs beyond short-term changes, especially given that participants are expecting societal changes as a result of improved science communication.

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