

Communicating Science: One-Way or Dialogue?

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Abstract: *Science affects all societal levels. However, many people feel intimidated and tend to shy away from science due to its complex nature. Scientists and researchers always sought ways to transfer the scientific knowledge to the public to eliminate any misunderstandings and provide clarity to people. In ancient times, scientific information was passed on by the scientist to the community by word of mouth as a mean of communication. This method empowered the one-way communication in science, and cultures viewed it as the only reliable approach in gaining scientific understanding. As popularity grew in science and controversial issues began to emerge regarding scientific findings and research, it proved that there is a compelling reason for the need for a dialogic approach. In essence, the questions and assumptions raised by scientific research call for an environment where people can request for clarification from the scientist or the person presenting the new idea. Advances in science and technology have also increased awareness among people, which emphasizes the move from monologue, or one-way communication, to Dialogue. This approach has proven to be an effective tool in creative efforts to solve problems (Faulkner 2011), yet there are situations where monologue is needed.*

Keywords: *One-Way Communication, Dialogue, Science Communication, Public Engagement, Consensus Conferences*

1. INTRODUCTION

Dialogue is essential when presenting scientific information. Science brings in different areas of research once an issue has been identified, or invention has been made in a certain area. This necessitates a setting where people can ask questions, and point out new gaps they point out in the process of the presentation. As people discuss the issues surrounding the new idea or invention, new knowledge and information comes up (Bucchi 2008). This new knowledge can be used to rectify issues that the researcher had not identified. Additionally, it can help identify gaps that the researcher can work on to improve the idea or invention. This is necessary in coming up with conclusive research as scientists are not perfect. The researcher can then conduct further examination, by including the public's views and ideas. For example, when designing an upcoming development, many areas are looked into. However, there are areas that may have been overlooked that can be revealed by the public during dialogic sessions and events.

People's contribution can make a positive change in the research. This is due to the nature of Dialogue which aids in recognizing common concerns that could have been addressed by the research (Pruitt 2005). Dialogue can also be used to encourage people for change, for example, Dialogue played a key role in ending apartheid in South Africa, and in the shaping of the country's future. This allowed different publics from various parts of the country to get involved in negotiations on the issues they needed to address. Similarly, Dialogue creates space for participative democracy; involving individuals from the public on political decisions and policies. Another instance, in Brazil the citizens have been empowered by their constitution to air their views, and make demands on issues on governance through a political forum. This is by airing their opinions on issues concerning their country and their leadership (Cornwall 2008).

2. DISCUSSION

The use of a dialogic approach helps eliminate authoritarian leadership as people's ideas are included in the government's decision making process. This mechanism is also labeled as consensus conferences which in other words puts science and technology on trial. In medical technology consensus, they are usually made up of expert panels that include; doctors,

professionals, scientists and hospital staff deliberating in front of a public audience. After starting in the United States, consensus conferences were quickly adopted in Europe, and in the case of a Danish Consensus, organized by The Board of Technology, expert panels were replaced with member of the general public. This dialogic approach proved to be more effective than the traditional consensus that started in the U.S. This advancement broadened discussions and took new technologies beyond the proposed issues on health and medicine, and relating the process to other affairs that include pollution and the environment (Gregory, Miller 1998). In essence, this enabled focus on the impact of technology on people and society, rather than being framed around perceptions of experts and politicians. These conferences also included activities such as budgeting which enable lay public participants to understand elements such as government spending. This is essential in enforcing peace in the country.

Technology is a powerful tool and plays a significant role in communicating science. Advancements in social media have made it possible for people to be informed on diverse issues; this knowledge equips the publics with understanding of novel developments. In marketing, profitable commercial organizations connects with it's customers and consumers in an online Dialogue, this engages and assists people to understand a concept or product as they can direct their comments or questions directly to the supplier. Dialogue in this context calls for accountability on the part of the researcher presenting the information. Dialogue presents an approach for the presenters to explain their findings, which helps ease tensions and clarify hidden information in the results. In such an environment where people are informed, Dialogue creates a doorway where this information can be refined, and divergent opinions can be attended to. This is critical in ensuring that all people understand the concept.

Dialogue creates an environment where information can be scrutinized by the parties to be affected by the information. In the past, information was passed in a monologue, and people could not have the opportunity to hold the presenters accountable for the information presented. However, with Dialogue people can ask the researcher or the presenter to clarify on issues, which helps in ensuring that the information passed is reliable, complete, and accurate (Pruitt 2005). Being an example; the Cabo Municipal Health Council used Dialogue in meetings with various stakeholders in public to clarify information. During council meetings, users of the municipal health system and health worker representatives got an opportunity to scrutinize health service providers. This method is also hoped to be applied by the autonomous civil society to hold the government accountable and in creating responsive governance (Cornwall 2008). In a participative budgeting scheme, participants from the public are given the opportunity to question the government and contribute in decisions on funding allocations and other financial concerns.

Nevertheless, there are situations that discourage the use of Dialogue. Dialogue is time consuming because of the need to cater for diverging opinions that result in the process of presenting information. Similarly, confrontational Dialogue prevents the parties from exploring and appreciating arguments and differences in opinions. This hinders the progress of communication as people fail to accept ideas and opinions from other people. This is a common case with political Dialogues, where members associated with a larger political party get more chances to share their views. Dialogue also brings in multiple conflicting opinions that could hinder the progression of an idea (Escobar 2012), an example is when Dialogue is used in policy development and multiple ideas could lead to delaying the process, or divert the people's attention from the primary goal. However, this distraction has pros and cons as it could make people lose focus on the issue at hand, or lead to a new idea! Moreover, in a dialogic process, the facilitator could seem unintentionally biased, which is an obstacle for people to appreciate ideas coming from the other members of the public. The facilitator in a Dialogue is there to create a path where there is order and differing opinions can be attended to. This is vital in ensuring that all people understand, which is ideal for a group or society to advance intellectually.

One-way communication on the other hand is essential in explaining an issue as it helps to avoid unnecessary interruptions. For example, Monologue was used to assure people that it was safe to consume British beef (Trench 2008). Furthermore, exchanging monologues are necessary as they allow people an opportunity to highlight their position. This is a situation where participants make a point as others listen. This is necessary in understanding the knowledge levels of the different individuals in the group, which helps the presenter know what and how much information to

provide. Monologue can be used in educating people, and in communicating a decision. This is required in informing people, which is crucial in creating familiarity and awareness of issues. This is applied in learning situations such as, civic education on democratic practices in Brazil. This is where the 'School for Citizens' are used to teach the citizens about democratic practices and governance (Cornwall 2008). It is also applied in situations where the scientist is the local expert, who is knowledgeable in an area. An example is when the UK government decided to proceed with GM technology, based on the opinion presented by experts (Trench 2008). This individual is able to present accurate information in a concise way that people can understand.

3. CONCLUSION

Dialogue and monologue can be used interchangeably in communicating science by applying the strengths of each method according to the situation. Dialogue is optimal for sharing information between various parties. This creates a bridge where common issues can be identified and meeting common grounds that are acceptable to all stakeholders. This approach can potentially illuminate the boundaries between realistic expectations and speculative hopes that the public may perceive. Unlike debates and deliberations where the objective is to persuade or inform, Dialogue assists in participants reflection on the issue rather than seeking a solution. Dialogue can be also considered as an advantage for scientists and researchers, this approach gives the communicator an opportunity to clarify issues, and accept responsibility for findings. This is critical in ensuring that the information provided is genuine and accurate. However, Dialogue is time consuming, leads to confusion and sometimes disorder, and encourages multiplicity of ideas, which could potentially impede progress and distract focus from the main issue. On the other hand, one-way communication can be used to educate people, to explain an idea, or to propose concepts. This is because the speaker is given an opportunity to highlight their opinion without interruption from the public. Experts also get an opportunity to express themselves in an area where the public is not familiar with. However, monologue can be unexciting, rhetorical, and uninspiring. In spite of the challenges, a dialogical approach to communication achieves results that are more effective than one-way communication.

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