There is Little Value to Science Without Inclusive Communication

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Information about new and relevant research helps the general public form educated opinions, and without it, fewer students would be inspired to pursue scientific careers. In short, scientific communication plays an essential role in the scientific community and society at large. Therefore, academic institutions should 1. provide inclusive and comprehensive scientific communication training to all students, and 2. communicate the importance of scientific communication guidelines to the general public. Scientists often consider laymen summaries burdensome, but they should consider the benefits of providing summaries of their work.

Two ways to institutionalise scientific communication are considered in this piece, included: 1. requiring training in scientific communication, and 2. developing scientific communication courses and seminars across North American universities. The way scientists, journalists, and the media use inclusive science communication in their work must change in order to be comprehensive to the public.

Abstract

It is critical to provide the general public with access to scientific knowledge because it allows them to form educated opinions, and inspires a new generation of future scientists. This paper argues that institutions should provide inclusive scientific communication training and raise awareness outside of academia about the importance of standard guidelines for lay summaries for scientists. According to a 2019 study conducted by Scheufele and Krause, lay explanations of research are typically created to entice clicks rather than to disseminate information (Scheufele & Krause, 2019). The solutions presented in this paper include scientists receiving training in inclusive science communication, developing related seminars and courses taught at universities across North America, and publishers providing lay summaries. The way scientists, journalists, and the media use inclusive science communication in their work needs to undergo drastic change to promote inclusive science.

Introduction

"Nothing in science has any value to society if it is not communicated" (Roe, 1952). This statement encapsulates the importance of inclusive science communication. A twentieth-century American psychologist, is one of the few science communicators that directly inspired me. Her communication of complex concepts to the layperson, like her work on the psychology of creativity, intelligence, and alcoholism, changed the public's perception of science.

It is essential to provide the general public access to scientific knowledge as it enables them to form educated opinions and inspires a fresh era of future scientists. Recent incidents like CRISPR, COVID-19, and climate change have given scientists the responsibility to justify their findings so that the principle behind research can be implicit. This paper argues that institutions should undertake inclusive scientific communication training and raise awareness beyond academia about the necessity for scientists to have standard guidelines for lay summaries.

Methods

The first step is for all scientists to receive training in inclusive science communication. A Royal Society study found that conventional school instruction is the best way to achieve science communication goals (Royal Society, 1985). Many believe scientists must be able to communicate with non-scientists, which is a challenging ability that many practising scientists lack. This is generally due to the increase of specialisations in science occurring throughout time, along with a lack of formal science communication training.

Think of a student enrolled in a biology course, discussing the fundamentals of genetics. The professor combines lectures, practical exercises, and group discussions to assist the students in comprehending difficult genetic concepts. By the end of this, the student has a better understanding of genetics and is capable of clarifying any misconceptions to their friends and families. This underlines the value of conventional schooling as an ideal way to accomplish goals related to science communication. It gives students a solid foundation in powerful science communication that they may use in a variety of situations throughout their life. Hence, these classes should focus on teaching students how to write with nuance, and to spot potential sources of misinterpretations.

This concept can be useful to develop seminars and courses taught at universities across North America to assist future professionals. Ministers of education should develop a course where students produce materials for science communication, with an emphasis on translating and developing video explainers about recent and relevant literature.

Through such a course, students would be able to communicate scientific knowledge to a wider audience, including members of the local community, younger generations, and policymakers. An experiment in Israel highlighted by the International Journal of Science Education produced a variety of training advancements in different schools

throughout the country, after observing the tremendous increase in public communication of science (Tsabari & Osborne, 2015). We can create a fundamentally cohesive atmosphere for the students to address concerns, expand their knowledge, reflect, and have their own identities. Hence, I believe this is a great place to start teaching inclusive science communication.

Additionally, scientists and media outlets should provide lay summaries. When a scientist makes an extra effort to explain their research simply to individuals outside the scientific community, they are providing a lay summary. Because they make research more understandable to the general public, lay summaries are essential for enhancing science communication. As a science student myself, having more access to lay science prior to my undergraduate experience would have helped spark my research interest earlier on. According to a British Science Association poll, some scientists believe lay summaries "dumb down" their research, while others believe it is not their duty to explain their findings to laypeople (Hinnant & Len-Ríos, 2009). Scientists should consider the advantages of providing lay summaries, rather than it being seen as a burden. More research visibility, more interactions with the general public, citations, and contacts with the media are all benefits scientists should consider.

In general, 87% of online users utilise the Internet for research purposes such as fact-checking or clarifying scientific jargon (Keuhne & Olden, 2015). Many scientists write lay summaries after publishing a study, and submit them to journals for distribution through a variety of marketing channels. The issue lies in the fact that many news stories will fabricate and misrepresent the findings to increase engagement. According to a 2019 study by Scheufele and Krause, lay explanations of research are usually made to attract clicks rather than to disseminate information (Scheufele & Krause, 2019). It is quite common for non-experts to read one misleading headline, and spread it as the primary takeaway. The significance of news in many people's lives will influence their choices about crucial issues. A lay summary's framework should further address the basic questions of "who/what/where/when/how many/why?". Answering these questions succinctly will provide the reader with all the necessary information. Nonetheless, I think it is essential to ensure media sources and scientists value their impact on society and adhere to the accessibility standard by effectively providing widely-understood and reliable information.

Conclusion

Although I may interpret this reasoning for strengthening science communication as valid, others may counter that the lack of funds is a barrier necessary for addressing. A substantial sum of money must be spent on professionals, workshops, and other activities to execute inclusive science communication training. Without enough financing,

science communicators may not have access to cutting-edge gear or be able to recruit key executives. Another barrier is reaching underrepresented communities, such as those with limited access to science education or from low-income backgrounds. Traditional science communication efforts tend to ignore these communities in favour of interacting with audiences who are already engaged in science.

According to a paper by Judd and Mckinnon from 2021, science communication initiatives favour men, white individuals, and people with higher levels of education (Judd & McKinnon, 2021). Nonetheless, Funding is still scarce, even if better science communication is agreed upon. In a report by the American Association for the Advancement of Science, scientific communication receives just 1% of the government research budget (AAAS, n.d.). Science communication deserves a greater portion of this budget because, without it, science communicators cannot engage the public with the newest technologies, and build diverse communication efforts. A solution to this issue is to push for a great government research budget directed to science communication, as 1% may not suffice.

In the end, we all play a part in our community, and I think pushing for this change is essential. The way that scientists, journalists, and the media use inclusive science communication in their work needs to undergo a fundamental change. It takes a coordinated effort from scientists, science communicators, media outlets, and ourselves to advance science communication. Let us work together, to ensure accessible science is widespread, inclusive to the public, and considered more by scientists and the media.

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