

## Storytelling: the soul of science communication

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**Abstract**

There is a renewed interest amongst science communication practitioners and scholars to explore the potential of storytelling in public communication of science, including to understand how science storytelling functions (or could fail) in different contexts. Drawing from storytelling as the core theme of the 2018 conference of the Public Communication of Science and Technology (PCST) Network, we present a selection of papers, essays and practice insights that offer diverse perspectives. Some contributions focus on the cultural and structural qualities of science stories and its key success factors, while others explore new formats, platforms and collaborators in science storytelling activities.

**Keywords**

Informal learning; Public engagement with science and technology; Science and technology, art and literature

**DOI**

<https://doi.org/10.22323/2.18050501>

*Submitted:* 27th September 2019

*Accepted:* 27th September 2019

*Published:* 14th October 2019

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In a world where we increasingly look towards science and technology to find answers that will help us secure a fair and sustainable future, it is imperative that people become empowered to make informed decisions about issues rooted in science. To achieve this, science communicators must make science-related information engaging and relevant. In short, it is about making people care. That is why we need to go beyond presenting facts and evidence, towards creating emotional connections between scientists and publics.

Thinking of stories as facts wrapped in emotions [Olson, 2009] may be the answer. That is why science communicators looking for ways to help people make sense of science and care about science-related issues, have renewed their attention on the potential of storytelling as a tool when communicating about science. We now have ample evidence that storytelling can be a powerful way to nurture engagement with science [Dahlstrom, 2014] and that stories help people to understand, process and recall science-related information [ElShafie, 2018].

All animals (and many plants) communicate in one way or another, but only humans tell stories. Storytelling is arguably the defining characteristic of humans that sets us apart from the animal kingdom and our hominin ancestors. Stories

have been used to pass on wisdom, knowledge, and culture and to strengthen social bonds since the earliest times of humankind's existence. Our lineage advanced because we could communicate in abstract terms about the world in which we lived. Ancient societies told stories around campfires and painted murals about their hunting expeditions on the walls of caves. This enabled our ancestors to process information and make meaning of their shared experiences [Coen, 2019].

Stories typically have a beginning, a middle and an end, a structure that is also known as a 'narrative arc'. The unexpected twists and turns that characterize a good storyline, build tension and keep the attention of readers, listeners and viewers. Another key characteristic of a story is that, at the end, the plot is resolved and something changes [Storr, 2019]. It is through understanding the reasons for this change that stories impart meaning and can change the way people see the world. Once communicators understand and tap into this aspect of storytelling, stories can become versatile tools to help people make sense of the world around them, including issues and developments rooted in science. Moreover, when people identify with the characters in a story, and when the views and values of the story characters resonate with their own, stories help them to make informed decisions about these issues in their own lives. Successful stories can compel people to act or change their behaviour or may ignite interest to discover more about a specific topic.

However, the ubiquity of online digital technologies is changing the way people encounter and consume stories and, importantly, the tools available to science communicators to tell stories [Holliman, 2011]. Therefore, it is crucial that we understand the role of storytelling and how to employ it as a tool in a digital communication environment. With this in mind, storytelling was the central theme of the 2018 Public Communication of Science and Technology (PCST) Conference in New Zealand.

The six papers in this special issue are by authors who presented at PCST 2018. However, this issue does not constitute a full set of proceedings from the conference. Rather, it is a compilation of ideas and perspectives about storytelling that emanated from the conference.

In the first paper, Sarah Davies, Megan Halpern, Maja Horst, David Kirby and Bruce Lewenstein establish that science stories are an integral part of culture. It is through storytelling about science, they argue, that science communication both shapes culture and formulates meanings that determine our identities. Taking a cultural approach, the authors offer a nuanced perspective on the diverse nature of science communication that may, as they suggest, help us to move beyond the 'deficit vs dialogue' debate in our field.

However, not all stories are created equal. Craig Cormick [2019] delves into the neural and psychological evidence to explore how and why stories affect us and what make a good story, but also how a good story is told. Success, he argues, depends on understanding the tools of storytelling and making sure that our stories resonate with people's experiences and values.

Wiebke Finkler and Bienvenido León [2019] provide a framework for telling better visual stories when communicating science through what is fast becoming the main way that the public, especially its younger members, consume media: online

on-demand short-format videos. They demonstrate that using their SUCCESS formula when communicating in an online world — where there is a staggering abundance of alternative material competing for an audience's eyes and ears — can not only communicate science effectively, it can also change people's attitudes.

Fredrik Brounéus, Maria Lindholm and Gustav Bohlin used a focus-group study in Sweden to show that public attitudes to science are shaped by different narratives [2019]. Four influential themes emerged from the study that could either enhance or detract from storytelling's effectiveness depending upon how they were represented: the persons conducting the science, the process by which the scientific research was undertaken, the results of the research, and how the results were communicated.

This interplay between storytelling and culture, perceptions and science, is at the core of the paper by Kaitlyn Martin, Lloyd Davis, and Susan Sandretto [2019]. They argue that in schools we should be concentrating on training *storytellers* about science rather than *story-listeners*. It is the very technology that is changing the way we consume stories, that can enable such a pedagogical shift: by having students make films about science using mobile smartphones and tablets, which can even be distributed online.

Finally, Michelle Riedlinger, Jenni Metcalfe, Ayelet Baram-Tsabari, Marta Entradas, Marina Joubert and Luisa Massarani [2019] provide a practice insight in which they contend that science communication, as a discipline, can benefit from combining practice with theory. Any science communication conference, such as PCST 2018, reveals that science communication exists as two largely discrete parts: on one hand there are the researchers and scholars of science communication who grapple with theories and measure the processes and effectiveness of science communication; on the other hand there are the practitioners, who do the actual communicating with publics about science. From a series of case studies, the message from these authors becomes clear: when scholars of science communication collaborate with practitioners of science communication involved in storytelling, the effectiveness of both groups is enhanced.

As this collection of six papers attest, storytelling is the common thread that binds much of our efforts in science communication, be we scholars or practitioners or some combination of both. At future conferences, it is our sincere hope that any divide will be much less apparent than the things that binds us. Instead of there being "something of a gulf between the practical science communication community and the body of researchers," as Steve Miller [2008] once observed, we hope there will be recognition that we have a common soul: storytelling.

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#### How to cite

Joubert, M. Davis L. and Metcalfe, J. (2019). 'Storytelling: the soul of science communication'. *JCOM* 18 (05), E. <https://doi.org/10.22323/2.18050501>.



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ISSN 1824-2049. Published by SISSA Medialab. [jcom.sissa.it](http://jcom.sissa.it)