

Supplementary material

Summary of publications

In their article “Four models of science journalism: a synthesis and practical assessment”, Secko et al. [2013] address the fact that, while science communication literature accuses science journalists of shortcomings (such as sensationalism or oversimplification), this same literature fails to offer solutions so that practitioners can connect theory and practice to solve these issues. The authors address this gap by developing four models of science journalism that are not only supported by theoretical considerations but also tied to practical criteria [Secko et al., 2013].

Salmon et al. [2015], in “The reflexive scientist: an approach to transforming public engagement”, explore bridging the gap between researchers and practitioners in public engagement with science (PES) through direct engagement and increased reflexivity. The article emphasises the need for communicators to interpret literature and be reflexive about the field's politics, institutional contexts, and personal assumptions. Collaborative writing is highlighted as a means to foster reflexivity and cultivate practitioners who contribute thoughtfully to the literature [Salmon et al., 2015].

Maestre et al. [2016] author their article “Theoretical-conceptual approach to the studies of Science Communication in Latin America and Cuba”. They observe that science communication research focuses on the practical aspects of communication, and thus the theoretical production is governed by everyday practice needs. The authors highlight that, in Cuba, there has been a high instability in the production of science communication theory, which can explain its low dissemination and therefore its disconnect with practice [Maestre et al., 2016].

Riesch et al. [2016], in their article “What is Public Engagement, and what is it for? A study of scientists' and science communicators' views”, analyse 41 interviews with scientists and science communicators involved in a large environmental public engagement (PE) project. In order to contribute to “bridge the gap between the theory and practice”, the authors suggest that the conversation between research and practice could advance by studying the aims and hopes of practitioners in a non-normative way, which could provide an insight into the issues that needed further research attention. For that, the study proposes a new practical, relevant model that practitioners can recognise and meaningfully interact with [Riesch et al., 2016].

In their practice insight “Telling stories in science communication: Case studies of scholar-practitioner collaboration”, Riedlinger et al. [2019] analyse how collaborative storytelling can improve the efficacy of both science communication research and practice. This study reports on mutual benefits of such collaborations: researchers gain

an understanding of their publics that translate into a greater likelihood of their research being taken up by practitioners and into a greater likelihood of being disseminated; while practitioners develop more inspiring and memorable storytelling, which helps their publics understand, critically reflect and make decisions about science [Riedlinger et al., 2019].

In the article “Comparing science communication theory with practice: An assessment and critique using Australian data”, Metcalfe [2019] contrasts science engagement activities against the three science communication models in theory: the deficit, the dialogue and the participation models. Metcalfe finds that the three methods overlap, and so researchers should focus on trying to understand how they support each other. Metcalfe concludes that a theory that is informed by the realities of practice is needed [Metcalfe, 2019].

Salmon and Roop [2019], in their article “Bridging the gap between science communication practice and theory: Reflecting on a decade of practitioner experience using polar outreach case studies to develop a new framework for public engagement design”, investigate science communication activities. The authors conclude that a closer collaboration between science communication researchers and practitioners would be beneficial as it would translate into more robust, transparent and effective practice, as well as more accessible and practice-informed literature [Salmon and Roop, 2019].

Anjos et al. [2021], in their paper “Communicating Astronomy with the Public: Perspectives of an International Community of Practice”, study the perspectives of astronomy communication practitioners. The authors conclude that these practitioners are not engaged with, or are not aware of, science communication research, and place the onus on the academic community and its closed-access publication policies. Effective collaboration between research and practice, say the authors, is expected to benefit the science-society relationship [Anjos et al., 2021].

In their practice insight “Collaboration for chemistry communication: Insights from a research-practice partnership”, Kollmann et al. [2021] investigate chemistry communication based on research-practice partnerships between science museums practitioners and academic social scientists in science communication. In particular, the authors focus on the Let’s Do Chemistry project, a partnership that sheds light on how to communicate chemistry in a theory-based way that is also grounded on the realities of practice [Kollmann et al., 2021].

Peterman et al. [2021], in their practice insight “Boundary spanners and thinking partners: adapting and expanding the research-practice partnership literature for public engagement with science (PES)”, observe that PES researchers and practitioners call on each other to apply existing scholarship and practical knowledge to support one another’s work. The authors reflect on the benefits of research-practice partnerships in

PES, and encourage the PES community to create and share their own collaborations between research and practice [Peterman et al., 2021].

In their article “Making science communication inclusive: an exploratory study of choices, challenges and change mechanisms in the United States from an emerging movement”, Menezes et al. [2022] analyse the perspectives of science communication researchers and practitioners in the U.S. The article highlights the need for connections and resource-sharing across contexts, and that there is a clear need for stronger relationships between researchers and practitioners; in particular, breaking the silos and elitism that hinder collaboration [Menezes et al., 2022].

In their practice insight “Exhibition research and practice at CERN: challenges and learnings of science communication `in the making””, Dvorzhitskaia et al. [2024] reflect on their researcher-practitioner collaborations while developing CERN Science Gateway exhibitions between 2019 and 2023. After 4 years of collaboration, the multidisciplinary team of exhibition developers and social science researchers shares lessons learnt regarding how to make such collaborations work, addressing some of the barriers they faced and how to overcome them [Dvorzhitskaia et al., 2024].

Buschow et al. [2024]’s practice insight, “Transforming science journalism through collaborative research: a case study of the German “WPK Innovation Fund for Science Journalism”, explores an ongoing project born in 2022 in which a university research team and a science journalism association collaborate for science journalism innovation. The authors propose a transformative research approach as a new framework for science communication research-practice collaborations, reflect on its opportunities and limitations (such as work timings), and share insights and tips for future interactions [Buschow et al., 2024].

In their practice insight “Teaching to bridge research and practice: perspectives from science communication educators across the world”, Kankaria et al. [2024] share a collection of teaching experiences on how to bring science communication research and practice closer. Reflections come from 6 different countries and address the fact that, although the research-practice gap is known, there are still no clear ways of facilitating meaningful interactions between them. The authors propose effective pedagogical strategies to bridge the two domains, such as local partnerships, dialogic approaches or reflexivity [Kankaria et al., 2024].