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EDITORIAL

Science communication pursing the “unexpected places”

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Abstract

Space is also communication. Widely regarded as an urban and daily space philosopher, Henri Lefebvre [1974] argued that space, as a physical dimension, is a shared platform to induce ower and lifestyle options, through a general social agreement. As such, Lefebreve proposed three perspectives: 1) conceived space (planned, technical, institutional); 2) perceived space (deeply rooted in daily practices); 3) living spaces (associated with symbolic and sentimental experiences). Years later, Michel de Certeau’s [1980] proposition of space as a “stable order”, “planned” and practice-oriented was then also studied by Marc Augé [1992], suggesting the concept of “non-places”, defined as the total absence of identity, relationships and historical meaning. Airports, shopping centres, hotels, walking circuits, just to name a few, were the symbol of such a lack of interaction, guided by visual and informative signs. Circulation, income and consumption are the key figures of these “non-spaces”.

Keywords

Public engagement with science and technology; Bridging research; practice and teaching; Informal learning

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Space is also communication. Widely regarded as an urban and daily space philosopher, Henri Lefebvre [1974] argued that space, as a physical dimension, is a shared platform to induce ower and lifestyle options, through a general social agreement. As such, Lefebreve proposed three perspectives: 1) conceived space (planned, technical, institutional); 2) perceived space (deeply rooted in daily practices); 3) living spaces (associated with symbolic and sentimental experiences). Years later, Michel de Certeau's [1980] proposition of space as a "stable order", "planned" and practice-oriented was then also studied by Marc Augé [1992], suggesting the concept of "non-places", defined as the total absence of identity, relationships and historical meaning. Airports, shopping centres, hotels, walking circuits, just to name a few, were the symbol of such a lack of interaction, guided by visual and informative signs. Circulation, income and consumption are the key figures of these "non-spaces".

As interaction may ask for physical boundaries, which have been redefined by highly enhanced technologies and strategies for people to interact, this special issue of JCOM does not engage with a critical discussion of "space" as a tool for communication, but it is keen to foster a wider perspective into alternative and non-formal strategies to communicate science.

Historically, the public communication of science was controlled mainly by individuals located within universities and similar research institutions [Schäfer & Fähnrich, 2020]. As a result, science was often perceived as exclusive, elitist and inaccessible. More recently, we have been witnessing the emergence and growth of broad social platforms to engage with new scientific advances, "shaped by the particularities of place, people, histories, and more-than-human relations" [Achiam et al., 2025]. In doing so, recent developments have paved the way for a renewed vision that understands science communication as a broader phenomenon. Several global and regional health crises have highlighted the importance of constructive dialogue between science and society, as well as the challenges associated with public apathy or ignorance towards science and related challenges such as anti-science sentiments, distrust, and misinformation about science [Ruão & Silva, 2021].

Science communication scholars and practitioners are working to increase the efficacy and impact of efforts to advance public engagement with science and exploring novel ways to promote people's interest in the production, sharing and application of scientific knowledge [Jensen & Gerber, 2020; Stocklmayer & Rennie, 2017]. These science communication efforts are increasingly focused on "the general public" — e.g., audiences who are not experts in science, but who are affected by the results of scientific activity [Bucchi, 2013], and with increasing calls to focus on world regions where public access to science remains constrained [Okoye et al., 2022].

Moreover, it is also important to address informal (or non-formal) approaches to effectively engage audiences outside the science domain, leading to a growing interest in the concept of "informal science communication" [Rowan, 2012]. Recent studies have suggested a positive association between communication in informal spaces and greater engagement and understanding of scientific concepts [Geiger et al., 2017; L. K. Hobbs, 2015] and highlighted that people tend to be emotionally available to learn about science when the context of interaction is comfortable and stimulating [Rowan, 2012]. Informal contexts seem to invite public participation in science and may help facilitate broader access. These informal contexts for science communication include places such as libraries and museums, but they can also be as unexpected as restaurants, bars, shopping centres, airports, cinemas, zoos and botanical gardens, even virtual spaces via social media platforms and online games [Bell et al., 2009; McCallie et al., 2009].

Having in mind some of these inspirations, this special issue features six articles and seven practice insights from researchers around the world. From social media to escape rooms, and from theatre to chemistry, there is a clear intent to address some "unexpected places", thus targeting diverse audiences, from children to adults.

Amanda Jane Mathieson, Edward Duca and Joseph Roche [2026] present the article "Back for the Future: Engaging the public with climate science through a multimodal STEM escape room". These escape rooms are designed for players to be "placed in a narrative-based predicament, and they must solve puzzles within a time limit to resolve it". Using a climate-themed context, both online and in person, authors stated that participants can "become immersed in the game environment, losing track of time and can succeed in the activity regardless of their science background".

Considering "the negative image of chemistry", Ariane Carolina Rocha, Ana Carolina Steola and Ana Cláudia Kasseboehmer [2026] demonstrate how an interactive model can influence high school students' motivation to learn chemistry. In the article "Exploring chemistry: the impact of an interactive model on student motivation in non-formal education spaces", the authors performed this experiment, evaluated by 250 public school students in Brazil, indicating "a positive impact on intrinsic motivation factors: interest, perceived competence, effort, value, pressure/tension, and perceived choice. The activity also stimulated interest in the university, reinforcing the role of non-formal education in overcoming chemophobia".

Moving on to the article "Science, Style, and Sentiment: Audience Responses to Arabic-Language Science Communication on YouTube", Omar Daoudi and Muhammad Awis [2026] evaluated the "emotional and cognitive responses of Arabic-speaking audiences to informal science communication on YouTube", focusing on three channels on this platform. Authors concluded that humour is positively associated with "stronger positive emotions and cognitive activation", whilst academic and conversational styles present "more mixed reactions". Space-related topics and Artificial Intelligence may equally suggest "complex emotions such as confusion and admiration".

Stepping to another popular digital platform, Ricardo Morais and Clara Eloïse Fernandes [2026] studied how TikTok can be used for science related content. In the article, "Scrolling through science: how accurate is science content on TikTok", the authors highlighted "trends in the accuracy of content, with some creators producing reliable information while others risk spreading misinformation". Expertise seems to be fundamental, the authors argued: "these science influencers do not appear to have prior experience in peer-reviewed scientific publishing on their own and could therefore lack the experience needed to provide verifiable sources and proper citations, whether they use images, datasets, or even actual peer-reviewed studies".

In the article "Improvised Theatre for Public Engagement with the Climate Crisis in Rural Irish Communities", Claire A. Murray, Gesche Kindermann, Paola Serrano Bravo, Katy Schutte, Fergus McAuliffe, Amanda Jane Mathieson, Ruth Graham and Jessamyn A. Fairfield [2026] used the theatre show "We Built This City on Rock and Coal" to foster engagement amongst improvisers, scientists and audience members about climate change topics. The play, touring diverse Irish coastal and island communities, demonstrated that "scientists were observed to be more confident jumping in unprompted to address points shared by the improvisers" and "people who expressed scepticism of climate change did attend the shows and shared their

perspectives in both responses to the prompts and in verbal/written communication after the show".

From the stage to the non-urban areas, Uttaran Dutta [2026] published the article "Cultural and Communicative Pathways in Grassroots Science and Innovation: Field Research Learnings from Under-Resourced Rural India". The author focused on marginalised voices and alternative epistemologies in culturally diverse regions, "building relationships with local communities and organisations through a culturally sensitive and dialogic approach". The article stands out for the need to engage in a multi-level approach around this topic, from women and youth to indigenous elderly, thus stating that considering science communication "solely as transmission or translation is inadequate for understanding engagement".

The next set of documents in this special issue are practice insights. Philipp Spitzer, Jan Höper, Martin Gröger and Volker Heck [2026] present GlacierXperience, "a hybrid educational project that combines an outdoor glacier laboratory with a virtual learning environment". Thus, "Glaciers as Classrooms: Designing an Outdoor Lab as a Learning Space on Ice" revealed how school groups were used to measure "fragmented knowledge and common misconceptions about glaciers" as they transform into "accessible and pedagogically coherent learning spaces, promoting climate literacy and student engagement with real-world environmental change".

"Three scientists walk into a bar… Approaching new audiences for informal science communication: the project "Plötzlich Wissen!" (Sudden Knowledge!)" is the practice insight presented by Julia Schnetzer, André Lampe, Inga Marie Ramcke, Kerstin Kremer and Philipp Schrögel [2026]. The authors presented this project as a combination of "guerilla science/street science, science busking and pub science events". Taking back the notes from multiple presentations of "Plötzlich Wissen!" (Sudden Knowledge!), from 2017 to 2024, in 16 major German cities, it presents how marine sciences can use "puppetry and hands-on experiments to spark interest in science and to reach non-academic audiences". Following this experiment, authors "provide practical recommendations for communicating scientists who are interested in using informal, guerilla-style approaches to reach audiences who might not be reached by traditional science communication strategies".

Interaction seems fundamental in the context of science communication. Using traditional board games, Andreas Siess, Oliver Ruf and Aleksandra Vujadinovic [2026] explored "how playful, narrative-driven formats can open epistemic spaces and promote a more intuitive, affective, and accessible understanding of science". So, the practice insight "From the Laboratory to the Kitchen Table? An Insight into Theory-Based Game Development Practices for Science Communication" suggested "that games — by embracing abstraction, indeterminacy, and co-creation — offer unique affordances for cultivating science literacy as lived experience rather than codified knowledge".

Still in the gaming ecosystem, Laura Hobbs, Sarah Behenna, Carly Stevens and Calum Hartley [2026] presented Minecraft Clubs, a strategy "to engage children with special educational needs, care-experienced children, and children in low socioeconomic status areas with science, technology, engineering, and maths". In "Exploring science with children from under-represented groups through shared interests: Insights from a decade of practice", the authors presented reflective insights "embedding STEM content rather than making it a primary feature of the activity, seeking and incorporating participants' input, and having

alternative approaches and resources available to facilitate accommodation of different needs and circumstances".

Finally, the Moving Farm Tour, "a movement-based, farm — and community-centred exploration of the intersection of art and culture with agriculture and climate change". In the practice insight "Climate Science on the Farm: Connecting Community to Research through Movement and Creative Action", Geoffrey Hunt, Christina Catanese, Jame McCray and Cassie Meador [2026] highlighted "the use of dance and creative engagement as tangible mechanisms for learning about, sharing, understanding and creating new perspectives". The authors argued that physical presence is vital to bring science out of the lab, using a "scalable, replicable model that demonstrates how live, interactive experiences are useful for cross-sector learning, broadening perspectives, fostering community building, and inspiring novel approaches to collaboration that can lead to better outcomes for researchers, industries, communities, and the planet".

This special issue may be relevant for, at least, two reasons. Firstly, it is deeply connected with a symbolic and humanitarian dimension. All papers clearly demonstrated a specific connection with society, from different geographical, social and economic contexts. This yet simplistic approach of science communication is thus combined with a set of places that scientific knowledge is not expected — or, at least, is not foreseeable — to be shared. Authors were also determined in their eagerness to propose spaces of interaction within digital and offline contexts, from pubs to rural areas. Theatre, marine sciences and board games. Probably, imagination is just a default setting for science communication to kick in.

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