

# HOW SCIENCE EDUCATION IS CHALLENGED BY SOCIAL MEDIA AND HOW IT MIGHT RESPOND

Dietmar Höttecke

Presenting Author: Dietmar Höttecke (Dietmar.hoettecke@uni-hamburg.de)  
aFaculty of Education, University Hamburg, Hamburg 20146, Germany

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Science is inevitably mediated to the public sphere and both professional journalism and social media networks play important roles. For well-informed decision-making, it is essential for citizens to know how scientists communicate with each other, as well as with the public. Until recently, the conventional mass media (e.g. newspapers) typically functioned as gatekeepers, helping to assess the reliability and trustworthiness of scientific claims. In today's culture, media and their gatekeeping roles are rapidly disappearing. In social media, information flows along existing networks, sometimes heedless of scientific expertise and quality of information. As a result, we need an expanded conception of nature of science (NOS): First, students need to learn about the epistemics of communicative practices, within science and in society, science as a system of distributed knowledge and expertise, characterised by division of labor as well as a social system of checks and balances, trust and credibility. Second, students must learn about the epistemic structure of science communication and the role of "gatekeepers". Here, the role of social media and its correlated phenomena must be considered like aggregated news, filter bubbles, echo chambers, spirals of silence, fake news, and purposeful disinformation. Third, I will focus on the consumer of science, including the role of confirmation bias, motivated reasoning, and the social context of trust. These three perspectives finally lead to the idea of *science media literacy* as an expansion of more traditionally NOS perspectives.

## FURTHER READING

- Höttecke, D. & Allchin, D. (2020). Re-conceptualizing Nature-of-Science Education in the Age of Social Media. *Science Education*, 104, 641–666.
- Höttecke, D. (2020). The Mediation of Science in the Age of Social Media. *The Journal and Proceedings of the Royal Society of New South Wales*, 152(3), 307-319.
- Zilz, K. & Höttecke, D. (2022). Promoting Pre-service Physics Teachers' Science Media Literacy. *Science Education Review Letters*, <https://edoc.hu-berlin.de/handle/18452/25148> (26.09.2022).

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