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Enhancing Research: A new approach to graduate training in science communication

Abstract

Innovation through cross-disciplinary collaboration is a major goal of nanotechnology research centers. Breakthroughs are anticipated at boundaries where scientific and engineering domain-expertise converge. Success depends on effective cross-disciplinary communication, a skill not emphasized in graduate education, where Ph.D. candidates typically acquire more experience presenting research *within* lab groups than *across* them. In Boston over the past three years, we have collaborated with faculty from two research centers to implement new methods to motivate student and post-doc acquisition and implementation of effective practices in cross-disciplinary research communication. These include presentation workshops followed by individual coaching sessions, application of a simple judging rubric, and audience participation in an Annual Meeting Research Communication Challenge competition, facilitated through an easy-to-use web app. Results to date are promising. Participants agree that presentations are improving, meetings are becoming more enjoyable, audiences are more attentive, and students are gaining confidence. It is more difficult to assess potential impacts on education outcomes, knowledge-sharing and cross-disciplinary collaboration; we are using self-reporting and exploring indicators for long-term tracking.

Brief Bio

Carol Lynn Alpert directs the Strategic Projects Group at the Museum of Science, Boston (MOS). She is co-director of the NSF Science-Technology Center for Integrated Quantum Materials (CIQM) based at Harvard, MIT, Howard, and MOS, and teaches a Research Communication Laboratory at MIT. Alpert co-founded the NSF Nanoscale Informal Science Education Network, a consortium of some 600 research and education organizations, and began the

AAAS "Presentation Rx Clinic," for Annual Meeting speakers. Recent NSF awards include "Scalable Nanomanufacturing: Continuous, Large-Scale Nanocomposite Production via Micellular Electropray," based at The Ohio State University (co-PI) and "QSTORM Collaborative Research: Switchable Quantum Dots and Adaptive Optics for Super-Resolution Imaging," with collaborators at Ohio State, Carnegie-Mellon, Brown University and the University of Georgia (PI). Alpert served as public engagement and informal science education director for the "Nanoscale Systems and their Device Applications" Nanoscale Science and Engineering Center (Harvard, MIT, UCSB and MOS; 2001-2012) and the Center for High-rate Nanomanufacturing NSEC (Northeastern, UMass-Lowell and UNH; 2004-2015). She has written and presented broadly on forging museum - research center partnerships, interpreting current science in museums, coaching researchers in science communication, engaging public audiences in nanotechnology, and engaging stakeholders in nano-EHS risk communications.