

Coaching scientists to play well together

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When scientists from different disciplines collaborate—as is increasingly necessary to confront the complexity of challenging research problems—interpersonal tussles often arise. One scientist may accuse another of stealing her ideas. Or, a researcher may feel he is not getting credit for his work or doesn't have access to important data.

"Interdisciplinary team science is now the state of the art across all branches of science and engineering," said Bonnie Spring, professor of preventive medicine at Northwestern University Feinberg School of Medicine. "But very few scientists have been trained to work with others outside of their own disciplinary silo."

The [skill](#) is critical because many National Institute of Health and National Science Foundation grants require applicants to show readiness for team science.

A free, online training tool developed by Northwestern, [teamscience.net](#), has been proven to develop skills to work with other scientists outside their own discipline.

A new study led by Spring showed scientists who completed the program's modules—called COALESCE—significantly boosted their knowledge about team science and increased their self-confidence about being able to successfully work in scientific teams. Most people who completed one or more modules (84%) said that the experience of taking the modules was very likely to positively impact their future research.

The study will be published July 18 in the *Journal of Clinical and Translational Science*.

There are few training resources to teach scientists how to collaborate, and the ones that are available don't have evidence of their effectiveness.

Teamscience.net is the only free, validated-by-research tool available to anyone at any time.

Almost 1,000 of the COALESCE users opted voluntarily to respond to questions about the learning modules, providing information about how taking each module influenced team science knowledge, skills and attitudes.

'You stole my idea'

The most common area of dispute among collaborating scientists is authorship concerns, such as accusations that one person stole ideas from another or that a contributor was not getting credit for his or her work, the study authors said. Other disputes arise around access to and analysis of data, utilization of materials or resources, and the general direction of the research itself. Underlying all of these issues is a common failure to prepare for working collaboratively with other scientists.

"Preparing in advance before starting to collaborate, often through the creation of a formal collaboration agreement document, is the best way to head off these types of disputes," said Angela Pfammatter, assistant professor of preventive medicine at Feinberg and a coauthor on the paper.

Spring suggested "having scientists discuss their expectations of one another and the collaboration to prevent acrimonious conflicts."

Skills to play well together

These skills are critical to a successful scientific team, the authors said:

1. The ability to choose team members who have the right mix of expertise, temperament and accessibility to round out a team.
2. The ability to anticipate what could go wrong and to develop [contingency plans](#) in advance.
3. The ability to manage conflict within the team.

The teamscience.net modules help scientists acquire these skills by letting them interact with different problem scenarios that can arise in team-based research. They can try out different solutions and learn from mistakes in a safe, online environment.

More than 16,000 people have accessed the resource in the past six years. Demand for team science training is expected to increase as interdisciplinary teams set out to tackle some of [science](#)'s most challenging problems.

More information: Candice C. Morey et al, The color-sharing bonus: Roles of perceptual organization and attentive processes in visual working memory., *Archives of Scientific Psychology* (2015). [DOI: 10.1037/arc0000014](#)

Provided by Northwestern University

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