

Research success increasingly hinges on honing teamwork skills

February 12 2016

Finding solutions to technological and social challenges has become more complex over the past half-century, and making significant progress often demands collaboration by sizable teams of experts with diverse and highly specialized kinds of knowledge.

Such "team [science](#)," as it's called, has led to important advances that could never have been accomplished by lone researchers.

"But sometimes it doesn't work all that well," says Arizona State University professor and psychologist Nancy Cooke, "and that's a big concern because it can be a waste of valuable time, effort and research funding."

The problem is recognized by the National Science Foundation, which asked the National Academies of Science, Engineering and Medicine to assemble a group of experts to seek ways to ensure and improve the effectiveness of research teams.

The 13-member Committee on the Science of Team Science was led by Cooke, chair of the Human Systems Engineering program in ASU's Ira A. Fulton Schools of Engineering.

She will give a presentation titled "Growth of Team Science: Challenges and Opportunities," from 8 to 9: 30 a.m. February 12 at the American Association for the Advancement of Science (AAAS) 2016 Annual Meeting in Washington, D.C.

Her committee's report, "Enhancing the Effectiveness of Team Science," was the third most downloaded article published last year by the National Academies Press. See the report at: <http://fullcircle.asu.edu/wp-content/uploads/2016/01/Team-Science-Report-Brief.pdf>.

Recruiting the people with the most impressive records of accomplishment and using the best research facilities is no guarantee for a successful team project, Cooke says.

"You must attend to the development of teamwork, communication and team leadership," she explains.

Those skills are especially important when [team members](#) are geographically dispersed, come from different cultures and work in different disciplines that don't always speak in the same technical parlance. Sometimes there is a language barrier even when team members speak the same or similar native languages.

"People in a particular field may use technical language in a way that means one thing to them but something different to experts in other areas," Cooke says.

For team chemistry to develop, "you need a sort of dating period," she says, during which team members focus on how to initiate and manage their interactions, share knowledge, maintain communications and make certain that "everyone is on the same page" throughout the course of the project.

"Role clarity is a big issue," she says. "There must be clear understanding about who is responsible and accountable for what."

Some team endeavors are hampered when individual researchers "go off and do their own thing" without informing team members, or when one

part of a team fails to meet expectations due to miscommunication, Cooke says.

Such missteps are particularly prone to happen when a project involves a "virtual team," one that communicates remotely, mostly - and often only - by e-mail, conference calls, video-conferencing and the like.

"Sometimes virtual interaction is the case even when research partners have offices in the same building," Cooke says.

Despite the convenience and other advantages of modern communication technologies, there is a bit of a cognitive disconnect when people engage remotely.

"We are programmed for face-to-face communication," she says, "and there is no reliably surefire substitute for it yet."

Cooke's research interests include team cognition, focusing on the development, application and evaluation of methodologies to elicit and assess team situation awareness and performance.

She wants to provide better understanding of how teamwork skills can best be learned and retained, and find quantifiable measures for evaluating team coordination, particularly through the analysis and modeling of team communication.

In their National Academies committee report, Cooke and her colleagues say public agencies and private organizations funding research should consider more than the capabilities of the engineers and scientists involved. Funders should give equal attention to researchers' strategies for collaboration throughout the entire time period that grants are supporting the projects.

More than that, the committee advises funders to provide support for the leadership, communication and management skills researchers need to do productive [team science](#).

AAAS is the world's largest science and technology society, and its annual meeting draws thousands of scientists, engineers, educators, policymakers and journalists from around the world.

Cooke's presentation at the AAAS annual meeting is part of a panel session titled "Team Science and Convergence: Implications for Education," organized by Katherine Bowman of the National Research Council.

Provided by Arizona State University

Citation: Research success increasingly hinges on honing teamwork skills (2016, February 12) retrieved 8 May 2024 from

<https://phys.org/news/2016-02-success-increasingly-hinges-honing-teamwork.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.