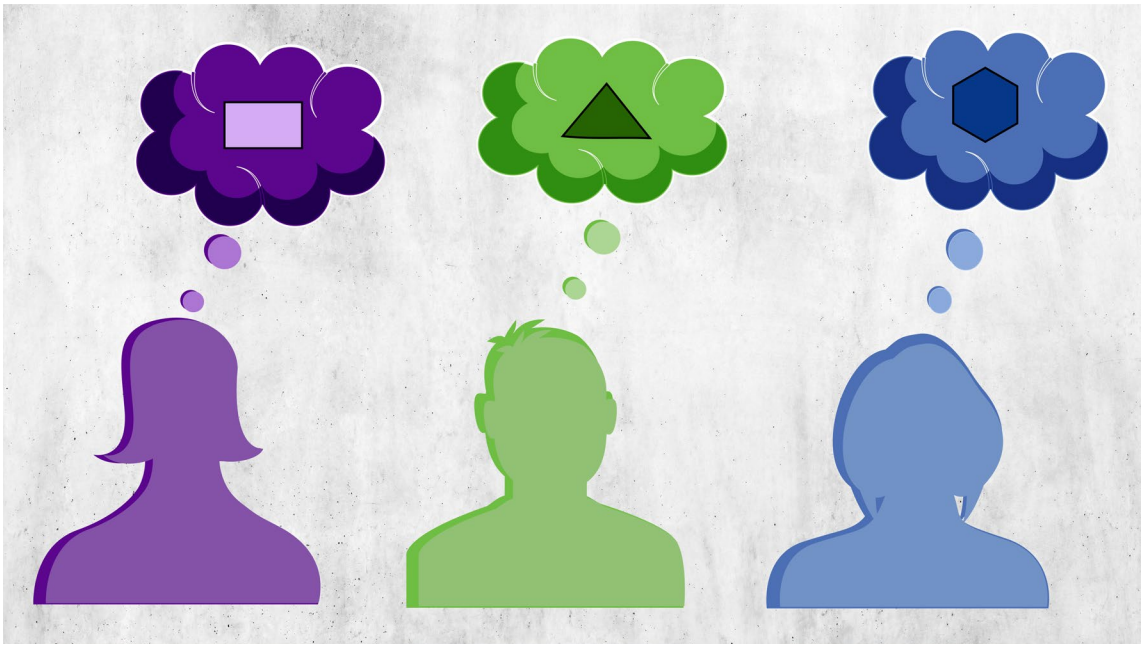
NATIONAL SOCIO-ENVIRONMENTAL SYNTHESIS CENTER



Explainer – Building an Interdisciplinary Team

By Margaret A. Palmer, SESYNC | February 20, 2023

Overview:

Team composition is well known to influence the success or failure of collaborative research. Composition influences a team's performance, creativity, research impact, and sense of satisfaction by its members. Both the literature on team science and our experiences at SESYNC reveal that there are some common strategies to assembling interdisciplinary teams. The first and one of the most important tasks is finding the right people. Below are some common questions related to assembling interdisciplinary teams and some tips on how to address them.

"How big should my team be?"

Team size is important because if it is too large, communications can be difficult, and subgroups will often tend to break off and work separately. You really want to avoid the latter if you hope to do truly interdisciplinary scholarship, which is synthetic by nature. We found that optimal size is around 8-12 people.

"How do I find people?"

Formulas for finding the right people do not exist; however, using your networks and tapping into new networks are the easiest ways to find people. Having said that, reading literature related to the research topic and contacting those authors who have exciting ideas, core strengths in areas needed, or divergent or "out-of-the-box" ideas on the topic can also be helpful.

"What do I look for when assembling members?"

Having the right expertise is not enough. Whom you invite must be open to interdisciplinary

collaboration. There are some tremendously productive scholars who work best on their own and struggle to translate their knowledge across disciplinary boundaries in a group setting. It's critical to have people at the table who have an open mind and can communicate their knowledge to be relevant across boundaries. Not everyone is good on teams, so avoid those who are domineering. Seek people who like to have fun while working.

"Can you give me some specific tips on building productive interdisciplinary research teams?"
Researchers of team science are studying ways to build productivity extensively, asking questions like: *Are there common attributes of well-functioning interdisciplinary teams? What makes such a research team take leaps that lead to novel findings?* What follows is some practical advice that comes from some of the research findings:

- **Functional diversity is important.** Add new members to the team who will bring new ideas, ways of thinking, and new skills—diversity promotes creativity and impact, but there is a trade-off with team size. And diversity extends beyond disciplines to include gender, race/ethnicity, and personal styles.
- **Experience helps.** If possible, seek members who have some experience in interdisciplinary or team collaborations since they and their associated networks will contribute to team productivity. Note, however, that when you have a group that has already worked together, it is very important to bring in new people.
- **Screen potential participants in a friendly way.** Have preliminary calls or meetings with potential team members to discuss research in a general way (before inviting) and ask about their experiences in collaborations. Additionally, bring up topics that help you assess their openness to new ideas, communication skills, and curiosity.
- **Select only those who can commit.** Think carefully about the likelihood that potential members will be able to commit and contribute; if they are involved in multiple projects—which is common for senior scholars—they may not be able to commit or may do so but not follow through. Find out what they have on their plate for the next 6 months or year!
- **Use a problem-oriented approach to attract and engage.** Recognize that people from different fields with different scholarly cultures and traditions will come together around compelling societal problems. Rather than posing specific scholarly questions, describe the social problem associated with specific questions.

"What if I want to do actionable team research?" If you are aiming for actionable results, it's also important to engage stakeholders and knowledge users, i.e., those who will have an interest in the results of the research. Including stakeholders and knowledge users brings added diversity to a team, which will influence the goals and the path taken to reach them. Build relationships by learning what those individuals' needs are and how you can shape your research to address those needs directly. Doing so is critical for understanding expectations and avoiding problems down the road. This SESYNC explainer provides a useful overview of what makes research actionable.

Further Reading:

- Bell, S.T., Brown, S.G., Colaneri, A. et al. (2018). Team composition and the ABCs of teamwork. *American Psychologist, 73*(4), 349–362. https://doi.org/10.1037/amp0000305
- Cook, N.J., & Hilton, M.L. (Eds). (2015). Team Composition and Assembly. In *Enhancing the Effectiveness of Team Science* (pp. 81-96). National Academies Press. https://nap.nationalacade

mies.org/catalog/19007/enhancing-the-effectiveness-of-team-science

- Ding, Y., Pulford, J., & Bates, I. (2020). Practical actions for fostering cross-disciplinary global health research: lessons from a narrative literature review. *BMJ Global Health, 5*(4), e002293. https://doi.org/10.1136/bmjgh-2020-002293
- Gomez-Zara, D., Paras, M., Twyman, M. et al. (2019). Who Would You Like to Work With? *CHI '19: Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems, 659,* 1-15. https://doi.org/10.1145/3290605.3300889
- Mach, K.J., Lemos, M.C., Meadow, A.M. et al. (2020). Actionable knowledge and the art of engagement. *Current Opinion in Environmental Sustainability, 42*, 30-37. https://doi.org/10.1016/j.cosust.2020.01.002
- Read, E.K., O'Rourke, M., Hong, G.S. et al. (2016). Building the team for team science. *Ecosphere,* 7(3), e01291. https://doi.org/10.1002/ecs2.1291

References:

- Boyd, J. (2022, March 1). *Explainer – What Is Actionable Research?* SESYNC. https://www.sesync.org/resources/explainer-what-actionable-research

Related SESYNC Content:

- Palmer, M.A. (2023, May 31). *Explainer – Best Practices for Interdisciplinary Team Research: Shaping a Team's Social Environment*. SESYNC. https://www.sesync.org/resources/explainer-best-practices-interdisciplinary-team-research-shaping-teams-social-environment
- Palmer, M.A. (2023, May 15). *Explainer – What Is a Shared Mental Model? Why Are Mental Models Useful for Interdisciplinary Research?* SESYNC. https://www.sesync.org/resources/explainer-what-shared-mental-model-why-are-mental-models-useful-interdisciplinary
- Palmer, M.A. (2023, April 3). *Explainer – What Is Interdisciplinary Team Research? Are There Best Practices?* SESYC. https://www.sesync.org/resources/explainer-what-interdisciplinary-team-research-are-there-best-practices
- Palmer, M.A. (2023, October 27). *Lesson – Practicing Reflexivity and Appreciating Diverse Perspectives*. SESYNC. https://www.sesync.org/resources/practicing-reflexivity-and-appreciating-diverse-perspectives-lesson
- Palmer, M.A., Boyd, J., Kramer, J.G. et al. (2023, May 12). *Explainer – Who Are Stakeholders? What Is the Role of Stakeholders in Convergent Research?* SESYNC. https://www.sesync.org/resources/explainer-who-are-stakeholders-what-role-stakeholders-convergent-research
- Scott, H. (2023, June 7). *Lesson – Creating Actionable Science on Campus*. SESYNC. https://www.sesync.org/resources/lesson-creating-actionable-science-campus
- Scott, H. (2023, May 15). *Lesson – Creating Interdisciplinary Research Teams, A Two-Session Exercise*. SESYNC. https://www.sesync.org/resources/lesson-creating-interdisciplinary-research-teams-two-session-exercise
- SESYNC. (2023, May 19). *Team Science, Interdisciplinary, and Transdisciplinary Resources*. https://www.sesync.org/resources/team-science-interdisciplinary-and-transdisciplinary-resources

This work was supported by the National Socio-Environmental Synthesis Center (SESYNC) under funding received from the National Science Foundation DBI-1639145.