



The Science of Team Science: Module One Questions

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Team Science 101

Core Concepts
Are there different types of team science?
Are transdisciplinary teams always preferable?
What is exciting about team science?
What's an example of science that could have benefitted from team collaboration?
What are the stages of the Tuckman model and how can understanding them help teams?
To whom can team science become a liability?
What should I do if I'm interested in participating in a team science project?
Is the best research coming from teams?
What should universities do to encourage team science?
Should institutions that teams follow a formula to ensure successful collaborations?
How do you know if a project is best for collaboration?
Why do teams come together and what are the motivations of these teams?
Is the transdisciplinary approach the only approach to team science research?
What skill does the next generation of researchers need to participate in team science?
Why all the interest in the scientific advances coming from teams?
What has been the team science trend at elite universities?
Are teams that cross very different bodies of knowledge really effective?
What do we know about the emergence of teams in science?
What is "revealed preference" and how does it apply to team science?
Why has team science grown so much over the past five decades?
How has the production of science changed over the past 50 years?

Who tends to produce higher-impact research: individuals or teams?
Team Science Research
What's an example of how a large-scale transdisciplinary team has been evaluated?
What is the Team Science Field Guide?
What's an example of the kind of team science research that a federal research institute has done?
What is the Team Science Toolkit?
What is the Collaboration Success Wizard?
What's an example of a study that's been conducted on what motivates individuals to form teams?
Can a team be too creative/innovative for its own good?
Are there natural stages that most teams go through?
What is the difference between a psychological approach and a structural/network approach to team research?
What is team cognition?
What are some of the key findings about distributed learning?
What is known about how teams think under stress?
Where should the science of team science go next?

Incentives and Challenges

To Team Science
Why do team science?
What are some of the challenges uniquely associated with conducting team science?
What are the differences in incentives for junior and senior investigators?
What is the current institutional atmosphere like for junior investigators who are interested in team science?
How have institutions adjusted to recognize researchers for participating in collaborations?
How have some institutions encouraged crossdisciplinary collaborations?
What are the costs and benefits of conducting research in teams?

What is the incentive from an institutional perspective for team science?
Before joining a team, what should I consider?
Are incentives at universities and institutions detrimental to the advancement of science?
How do traditional incentives challenge scientists who want to work on a team?
How do individuals benefit from participating in team science?
For Junior Investigators
How can institutions adapt to better support junior faculty who participate in team science?
What mentorship considerations should a new investigator make when deciding whether to participate on a team?
What advice would a research development officer have for junior faculty members interested in team science?
What are the challenges that a junior faculty member working on a team may face?
What is the current institutional atmosphere like for junior investigators interested in participating in team science?
For Senior Investigators
What are some of the incentives for senior researchers to participate in team science?
What keeps senior investigators from participating in teams?

Assembling a Team

Team Building
What is collaboration readiness?
What collaboration readiness factors should I be mindful of for my team?
Is there an optimal team size?
How should scientists select members for their team?
How does a person's perception of their collaborative skills play a role in their capacity to engage?
What interpersonal considerations should I make when selecting team members?
Do collaborations work best if none of the members have previously collaborated?
What factors in regard to geographic limitations should a leader consider when assembling a team?

What interpersonal considerations should I take when selecting team members?
Should all scientists work on teams?
Should a team have both junior and senior investigators?
What are the incentives to investing time and energy to seeking out new collaborators?
What's the best way to find a new collaborator to join a team?
Which roles are needed to ensure a successful team composition?
What kind of support is available to cross-disciplinary teams?
Are there best practices for building a cross-disciplinary team?
What kind of missteps can lead to failure when forming a team?
What steps can lead to greater success in forming a team?
How can a Research Development Officer engage faculty in a project?
What's the significance of an Request For Information (RFI)?
How do homophily and proximity affect teams?
What should come first: the funding prospect or the scientific question?
Why collaborate from a distance and not with a local expert?
Is there a role for generalists on teams?
Does a person's professional network influence the productivity and creativity of a team effort.
How does an individual's network structure influence his or hers ability to engage in impactful team-based work.
What factors do I need to consider in order to build a good team?
How can I prevent picking future free-riders for my team?
How can I prepare myself mentally for working in a team-based arrangement?
If teams and networks matter so much, how do I go about picking optimal teammates?
What is the holy trinity of teamwork?
What attitudinal features should potential collaborators be screened for?
How can faculty make connections with researchers in other disciplines?

Managing a Team

Communication
What is a real-world example of cognition contributing to team failure?
What is a real-world example of attitudes or emotions contributing to a team failure?
Is face-to-face interaction necessary for teams?
What are some best practices for finding funding?
How often should teams meet face-to-face?
How do team members communicate when they speak very different scientific languages?
With all the available resources does physical distance from collaborators still matter?
What are some issues related to communication that arise on teams?
Why should a team invest time in discussing goals?
What factors or steps can help team members to work better together?
How have collaborators communicated successfully with team members from other fields?
How have experts successfully communicated with specialists from other fields?
How do geographical challenges affect the development of a team? How should researchers address these challenges?
How can teams strengthen communication between junior and senior investigators?
What are the costs associated with adding a collaborator who is located far from other team members?
Should a team's scientific question be malleable or fixed?
What are the challenges of bridging diverse areas of expertise within a team?
What is crew resource management and how does it apply to team science?
What does ideal communication look like on a team?
What's an example of a real-life communication gap?
How do teams bridge communication gaps?
Leadership
What type of leadership is best for transdisciplinary teams?

Is a charismatic leader the best suited to lead a team?
Should scientific teams have a management specialist head their projects?
What should a domain expert do who doesn't have training in management/leadership skills?
What are some challenges associated with trust-building in team science?
How can a leader maintain connections among team members?
How can I establish a leadership presence if I have team members in various locations?
Should a cross-disciplinary team have more than one leader?
How can a leader facilitate communication with the team?
How can a leader obtain team member buy-in throughout the length of a project?
What should a leader keep in mind when selecting individuals for a team?
Is there a formula for effective leadership?
How might a team leader foster positive attitudes on his or her team?
How should team leaders approach their role if they have lower status than other scientists on their team?
How can a leader encourage positive conflict and discourage negative conflict?
Conflict/Conflict Resolution
What are signs that a team is in trouble?
What are the most common team conflicts?
How can I handle authorship disputes?
What can I do at the beginning of a collaboration to help avoid conflict later in a project?
Do all teams need to address how authorship will be handled if a team member leaves and is replaced before the project is finished?
If my institution doesn't have an outside mediator or ombudsman, how might I work to resolve conflict?
Is conflict bad for a team?
What is a red flag that indicates a team isn't functioning well?
Why invest time and energy in creating a written agreement up front about how a team will operate?
What do individuals need to keep in mind when working on a team?

How can a team member handle someone who is free-riding?
What is the "Matthew Effect" and how does it relate to team science?
Cyberinfrastructure
What kind of cyberinfrastructures are helpful to teams?
What kind of technology is making collaboration easier and how?
What are the four components of cyberinfrastructure essential for successful teams?
How can we improve the use of cyberinfrastructure?

Evaluating Team Performance

Peer Evaluation
What are the appropriate metrics that can be used to evaluate teams?
How does a team define success?
How might a research development officer evaluate the success of teams they've organized?
Bibliometrics
Is there one ideal way to evaluate teams?
What are the challenges with evaluating team science?
What are common characteristics of successful teams?
Are bibliometrics the best way to measure team success?

Looking for the answers? Find them all at teamscience.net!



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