

Title:

Data associated with “Interpersonal relationships drive successful team science: an exemplary case-based study”

Abstract:

The science of team science (SciTS), or collaborations between groups of scientists with varying expertise, is required for researching solutions to complex problems of the 21st century. Despite the essential need for transdisciplinary interactions, knowledge about training scientists and developing personal mastery (as a set of principles and practices necessary for team learning) in productive team interactions is still in its nascent stages. This article reports on a longitudinal case study of an exemplary scientific team and evaluates the following question: How do scientists enhance their productivity through participation in transdisciplinary teams? By applying mixed methods including social network surveys, participant observation, focus groups, interviews, and historical social network data, we found that the interactions of an international, transdisciplinary scientific team trained scientists to become experts in their field, helped the team develop personal mastery, and advanced their scientific productivity. The team’s processes and practices to train new scientists and create scientific team propelled new ideas, collaborations, and research outcomes over a 15-year period. This case study highlights that in addition to specific scientific discoveries, scientific progress benefits from developing and forming interpersonal relationships among scientists from diverse disciplines.

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Format of data files

.csv

Location where data were collected

Colorado State University

Time period during which data were collected

2015-04-01 to 2017-12-31

File Information:

This dataset includes three social network matrices (Mentor, Advice, and Scientific Productivity) and one participant attribute file for each of four years (2015-2018), as well as a Team History file with a summary of what year each participant joined the team.

File inventory:

2015_Mentor.csv
2015_Advice.csv
2015_Scientific_Productivity.csv
2015_Attribute.csv
2016_Mentor.csv
2016_Advice.csv
2016_Scientific_Productivity.csv
2016_Attribute.csv2017_Mentor.csv
2017_Advice.csv
2017_Scientific_Productivity.csv
2017_Attribute.csv2018_Mentor.csv
2018_Advice.csv
2018_Scientific_Productivity.csv
2018_Attribute.csv
Team_History.csv

*Open ended survey responses and interview transcripts are available upon request to protect the privacy of team members

Variable information:

The social network data (Mentor, Advice, and Scientific Productivity) are in the form of a matrix, with participants listed as rows and columns. [Specify whether the participant responding to the question is represented by the row or by the column ID.]

Mentor – “Do you consider this person a mentor?” (0=no, 1=yes)

Advice – “Do you seek professional advice from this person?” (0=no, 1=yes)

Scientific Productivity – Sum of:

 "Worked on or submitted a grant proposal" (0=no, 1=yes)

 "Worked on joint publications presentations, or conference proceeding" (0=no, 1=yes)

 "Worked on NEW Consulting or tech support projects" (0=no, 1=yes)

 "Sat on a student’s committee together" (for grad students, "mark if members of your committee"; 0=no, 1=yes)

In 2015, the Scientific Productivity questions were weighted, e.g. “How many grants did you work on together?”, “How many publications did you work on together?” In other years, they were asked as binary yes/no questions.

The attribute data contains the following variables:

id – Participant identifier

Role – Participant role (Collaborator, Faculty, Graduate student, Lab manager, Post doc, Undergraduate student)

Years – Number of years participant has been on the team roster

The Team History data is in the form of an edgelist. Data shows the participant ID of team members and years they appeared on the team roster.

Method(s):

Social network data was collected using a social network survey every year 2015-2018. Team history data was collected using team rosters 2004-2018.

Data was analyzed using R Studio and igraph R package.

Software:

Social network data was collected using Qualtrics (<https://www.qualtrics.com/>) in 2015 and ONA (Organizational Network Analysis) Surveys (<https://www.onasurveys.com/>) 2016, 2017, and 2018.

Data was recorded in Microsoft Excel and analyzed using R Studio 3.5.1 and the igraph R Package 1.2.4.2

Limitations to reuse:

Due to IRB restrictions we cannot release additional attribute data and names without additional IRB permissions. If you would like access attribute data, please contact Hannahbethlove@gmail.com to make arrangements.

Date dataset was last modified: 07/13/2020

Are there multiple versions of the dataset? No