Research Collaborations: Tips for Building Teams and Funding Projects

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California Alliance for
Hispanic-serving
Social Science Advancement

Today's Speakers

Dr. Christine Ogilvie Hendren
Director, Research Institute for
Environment, Energy and Economics
Appalachian State University

Dr. Holly Hapke
Director of Research Development
School of Social Sciences
UC Irvine

Overview

- What are the benefits of collaboration?

- How does one find collaborators?

- What are the common barriers or obstacles to collaboration?

- What are the best practices for fostering successful collaborations?

- Tips for funding collaborative research.

First – a bit about CAHSSA

- CAHSSA is the *California Alliance for Hispanic-serving Social Science Advancement* (https://cahssa.ucsb.edu)

- Funded by NSF Build and Broaden Program
  - https://beta.nsf.gov/funding/opportunities/build-and-broaden-enhancing-social-behavioral-and-economic-science-research

- Collaboration between the UC and the CSU to:
  - Understand the barriers to grant proposal submission for social and behavioral scientists at HSIs through research (faculty survey; proposal review analysis)

  - Develop recommendations to NSF to support expansion of funding to HSIs

  - Deliver programming for faculty and administrators at HSIs (webinars, mentored proposal writing groups, collaborative proposal writing retreats)
    - Writing Retreat – Lake Arrowhead – April 26-29, 2023

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Co-Investigators and Personnel

- ***Barbara Endemaño Walker***
  - Director of Research Development and Special Assistant to the Executive Vice Chancellor for Diversity Initiatives, UC Santa Barbara

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- ***Billy Wagner***
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- ***Isha Bhallamudi***
  - Doctoral Candidate, Department of Sociology, UC Irvine

- ***Jemima Esther Moses***
  - Master's Student, CSU Channel Islands

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Personal Stories of Collaboration

Christine Ogilvie Hendren
Interdisciplinary Research Leadership Journey

Director of the Research Institute for Environment, Energy and Economics at Appalachian State University

Integration Director and Co-PI of NSF STC:
Science and Technologies for Phosphorus Sustainability (STEPS) Center

Executive director for interdisciplinary center investigating environmental implications of nanotechnology: *7 universities, international partners, ~140 researchers*

Research faculty in Civil & Environmental Engineering : *Teach and research on interdisciplinary approaches to understand risks of emerging technologies*

Faculty Co-Lead for the Team Science Core
Teach medical fellows, and provide workshops and integration support to intersectional research teams

Co-Founder of Team Helium, LLC
Consultancy for elevating research leadership

Founder, Co-Chair of Interdisiplinary Integration Research Careers Hub
A community of practice for dedicated interstitial connective roles

Holly Hapke

- Researcher:
  - Led or participated in ~18 collaborations:
  - Current Projects:
    - Fish4Food
    - Dried Fish Matters
    - Gender Integration in Fisheries Economics (IIFET)
    - Indian Ocean Collaboratory on Small-scale Fisheries, Rupture, and Gendered Adaptations
    - COVID-19 and the Well-being of Small-Island Barangays in Visayas and Mindanao
    - CAHSSA

- NSF Program Officer or Panelist:
  - Led/co-led 3 cross-directorate, interdisciplinary funding programs
  - Served on review panels for 5 cross-directorate, interdisciplinary programs

- Research Development Director:
  - Facilitated ~12 team collaborations 2018-present

Benefits of Collaboration

No one can whistle a symphony.
It takes a whole orchestra to play it.
~ H.E. Luccock

Why Undertake Collaborative Research?

- "Better" Science
- "Wicked Problems" require interdisciplinary collaboration
- Greater creativity
- Less work – MORE FUN
- Scholarly Development: better writer, more publications and higher impact publications
- Formal opportunities for collaboration are increasing – e.g., "cluster hires"
- Funding opportunities from federal agencies (NIH, NSF) and private foundations (SSRC) are expanding

Research Collaboration Definitions

THEMES → Cooperation & Mutuality

…"define the collaborative relationship as a durable and pervasive one, which aims to accomplish common goals (e.g., success and rewards) through a jointly structured and shared responsibility."

Mattessich and Monsey 1992

"the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own"

Schrage (1995) p. 33

"human behavior that facilitates the sharing of meaning and completion of activities with respect to a mutually shared superordinate goal and which takes place in a particular social, or work, setting".
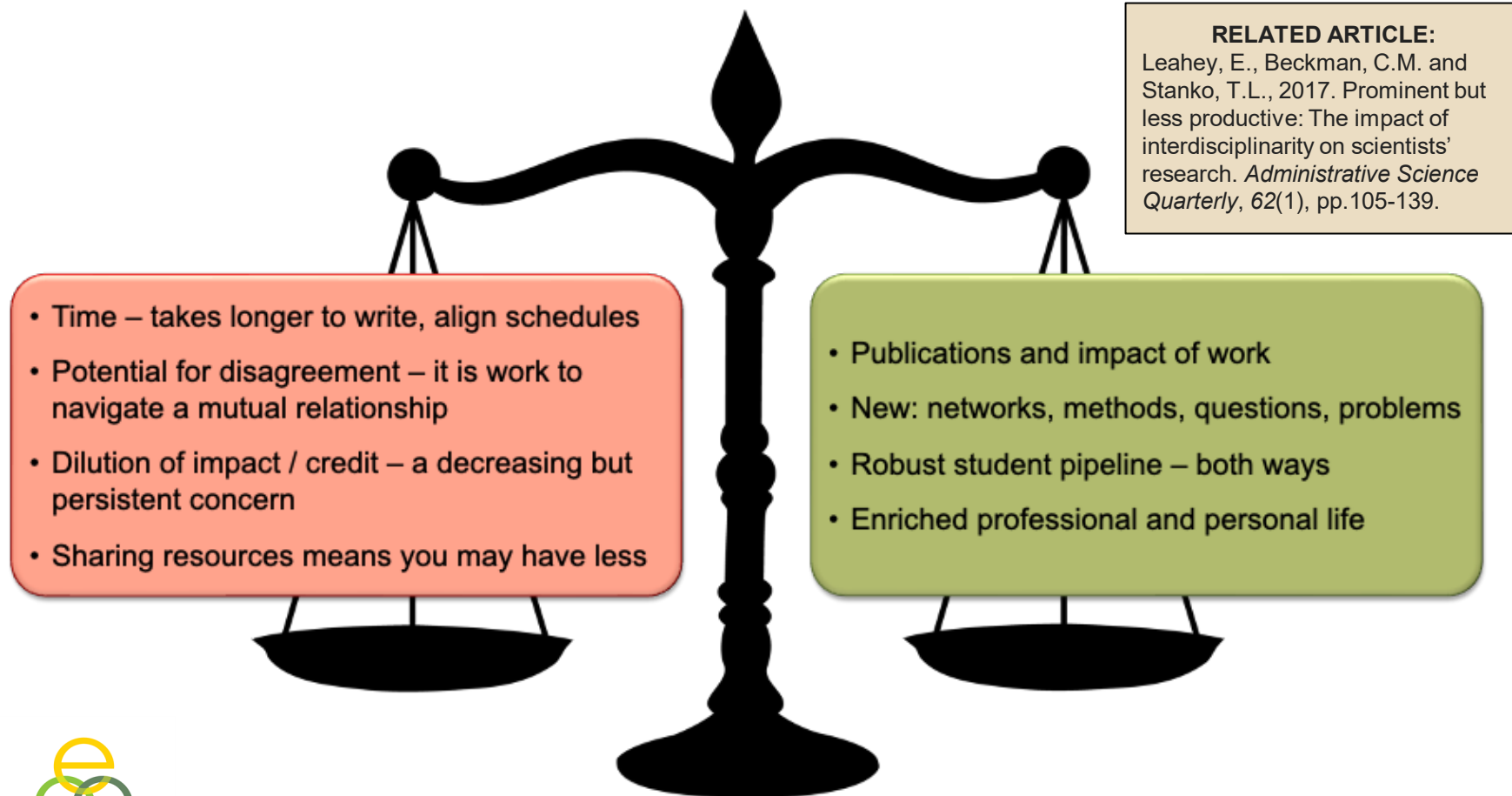
Iivonen and Sonnenwald (2000) p. 79

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A case for benefits implies weighing against costs

Hence, it's important to know when the research outcome and impact are worth the costs

RELATED ARTICLE:
Leahey, E., Beckman, C.M. and Stanko, T.L., 2017. Prominent but less productive: The impact of interdisciplinarity on scientists' research. *Administrative Science Quarterly*, *62*(1), pp.105-139.

- Time – takes longer to write, align schedules
- Potential for disagreement – it is work to navigate a mutual relationship
- Dilution of impact / credit – a decreasing but persistent concern
- Sharing resources means you may have less

- Publications and impact of work
- New: networks, methods, questions, problems
- Robust student pipeline – both ways
- Enriched professional and personal life

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NSF Team Science Leaders' Workshop Survey

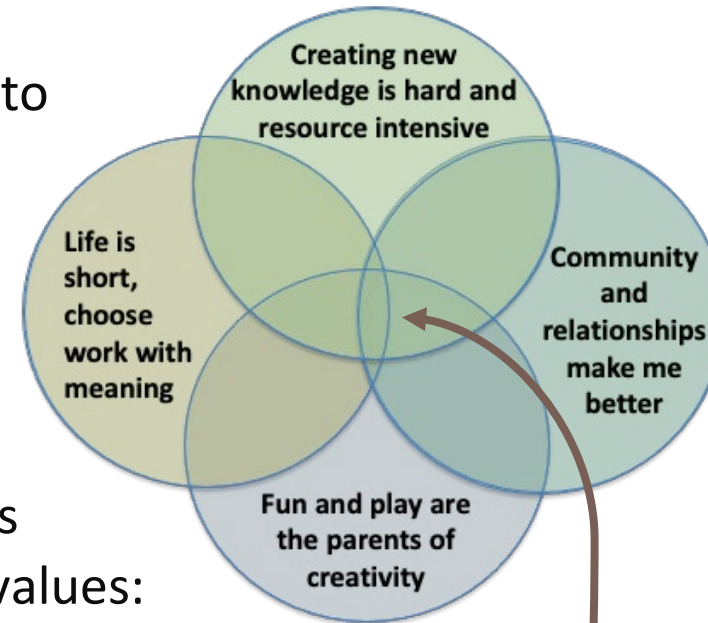## Conditions that [attendees thought] make collaboration most effective

- Leadership at all levels (top institutional administrators, organizational leaders, and project leaders)
- Resources (funding, time, and shared space infrastructure)
- Tools to support collaboration (software)
- Recognition and rewards
- Communication and cooperation

Conditions that [attendees thought] make collaboration most challenging

- A culture that favors individual achievement over collaboration
- Different communication styles and the lack of a common language among collaborators
- Lack of supportive leadership
- Silos and rigid academic departmental structures
- Recognition and reward structures

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Collaborations Can Benefit Research Career Meaning and Impact

- Perspective on the best next question to address
- Share knowledge and resources
- Develop new products or methods
- Cultivate lifelong mentorship
- Connection to high impact excellence
- Pipeline and opportunities for students
- Philosophical reasoning and personal values: think about goals for expanding your professional "family tree"

Creating new knowledge is hard and resource intensive

Life is short, choose work with meaning

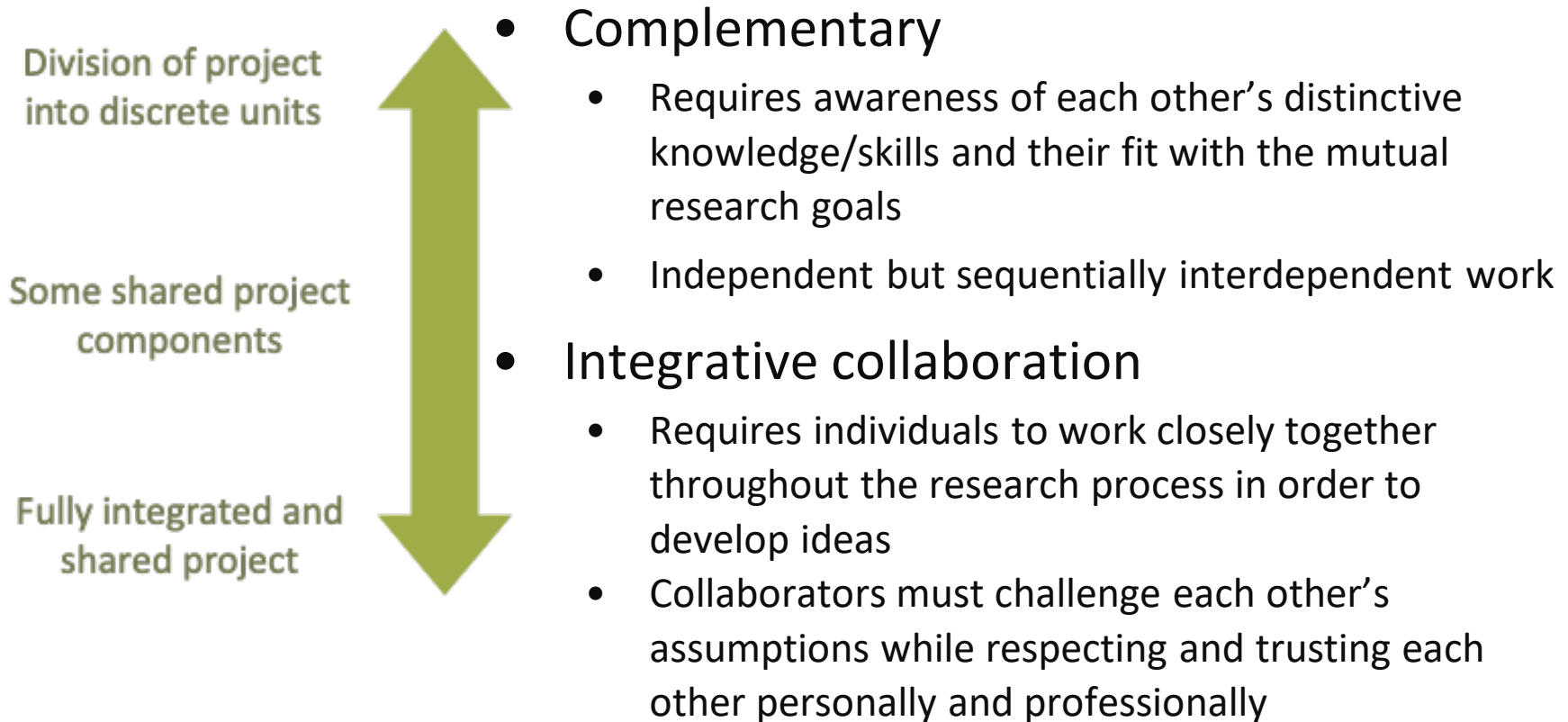Community and relationships make me better

Fun and play are the parents of creativity

Aiming for work that recognizes this intersection of beliefs

e.g., Kraut, Egido, & Galegher, 1990; Finholt, 1999; Kling & McKim, 2000

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Finding Collaborators

Research Collaboration Models: Functional Typology

Division of project into discrete units

Some shared project components

Fully integrated and shared project

- Complementary
  - Requires awareness of each other's distinctive knowledge/skills and their fit with the mutual research goals
  - Independent but sequentially interdependent work

- Integrative collaboration
  - Requires individuals to work closely together throughout the research process in order to develop ideas
  - Collaborators must challenge each other's assumptions while respecting and trusting each other personally and professionally

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Research Collaboration Models: Functional Typology

Another inexhaustive list

- Collaboration with students
  includes problem solving, planning, information co-creation and dissemination

- Collaboration through students
  a student does work that bridges the work of multiple professors

- National/International Centers with a hub and spoke model
  start as a spoke to learn what a hub does

- Internal to your institution, e.g. clusters, institutes

- National or International collaborations with scholars working on same content in different milieu

Hara, N., et al., 2003. https://doi.org/10.1002/asi.10291

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Research Collaboration Models: Factors Impacting Collaboration

- Compatibility

- Work style

- Writing style

- Time orientation

- Work priority [specific to shared project]

- "Chemistry"

  –Mutual appreciation and respect for each other's work

  –Trust

  –Comradery

"compatibility on broad historical, philosophical, and strategic grounds: common experiences, values and principles, and hopes for the future"

Kanter (1994)

NOTE the vulnerability to systemic exclusion and implicit bias.

Hara, N., et al., 2003. https://doi.org/10.1002/asi.10291,

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Research Collaboration Starting Points

- "In short, collaboration is neither easily achieved nor guaranteed to succeed even though the nature of scientific work requires working together for a common goal and sharing of knowledge" – Hara et al. 2003
- Consider creating a one-pager primer for yourself as boilerplate language for potential collaborator proposals.

To message effectively:
Know thyself
- I work with ____ methods
- I'm interested in ____ research questions and problems
- I'm interested in collaboration that would enable me to ____

To keep ideas coming:
Stay curious & connected
- Protect time to read
- Ask questions and meet strangers
- Keep contact lists:
  - Cohort
  - Students
  - Colleagues
  - Conference connections

To maintain focus:
Categorize intentions
- Just trade ideas over coffee?
- Write something together?
- Learn a new approach/method?
- Seek joint funding?

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How to Find Collaborators

- Calibrate your compass to know the values and attributes you want
- Find the communities/domain spaces where people may know and do what you need:
  - On-Campus:
    - Dept colleagues
    - Attend events outside your dept
    - Research Development Office or Office of Research resource
  - Professional Meetings, Conferences, Listservs, Affinity Groups
  - Literature or Funding Agency Award Searches
  - Databases: Pivot, Dimensions
  - Offer Self as a panelist to NSF

Finding Collaborators

- **Proactive Networking**:
  - On campus
  - Professional/Community organizations, conferences, workshops, affinity groups
  - Connect yourself to mailing lists and listservs
  - Read "bulletin boards", activate your "radar"

- Cold Calling - Introduce yourself, or ask for an introduction from someone

- Informational Interviews (20-minute coffee conversations)

Developing Collaborations

- Identifying the Right People

- Time and Accountability?

- Temporal Diversity

- Collaboration Agreement – how do all benefit?
  - NIH: https://www.nhlbi.nih.gov/about/intramural-research/collaborative-research-agreements

- Collaboration and Team Science Field Guide
  - https://www.cancer.gov/about-nci/organization/crs/research-initiatives/team-science-field-guide/collaboration-team-science-guide.pdf

Common Barriers to Collaboration

Common Barriers to Collaboration

- Divergent philosophies and styles

- Divergent intellectual personalities

- Added time and effort required for co-planning and effective communication

- Ambiguity in team member roles and responsibilities

- Fitting collaborative work within the academic context of individual achievement

DeHart, D., 2017. Team science: A qualitative study of benefits, challenges, and lessons learned. *The Social Science Journal*, *54*(4), pp.458-467.

Weinfurt, K.P., 2019. Managing different intellectual personalities in scientific teams. *Journal of Clinical and Translational Science*, *3*(2-3), pp.50-52.

Mohammed, S. and Nadkarni, S., 2011. Temporal diversity and team performance: The moderating role of team temporal leadership. Academy of Management Journal, 54(3), pp.489-508.

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Power Dynamics Between Disciplines

- Social Scientists often an afterthought

- Even if included at outset, research questions are often already set

- Disciplinary hierarchy and bias against Social Sciences – misunderstanding or lack of awareness about actual rigor of our methods

- Imagined role for social science often limited or non-existent
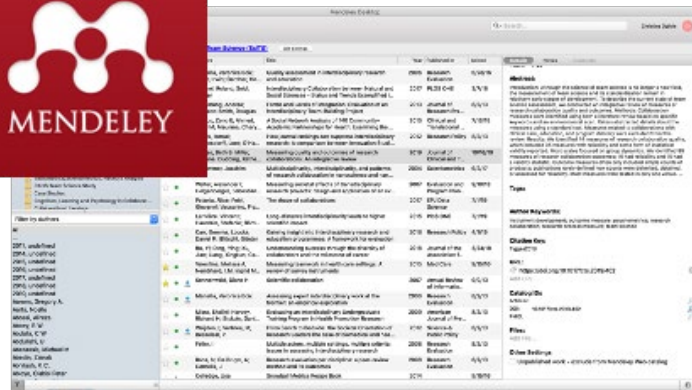
Best Practices for Success

Research Collaboration Best Practice #1

Be aware of resources – evidence bases and tools exist to help!

Resources: Shared Library of Primary Literature

https://www.mendeley.com/community/science-of-team-science-(scits)/

> 2500 References

Sorted into 52 topical areas

The Mendeley collaborative library for Science of Team Science is an open-source resource that is communally maintained by members of the International Network for the Science of Team Science (INSciTS). Email **hendrenco@appstate.edu** if you would like to be invited to the folder within the Mendeley application.
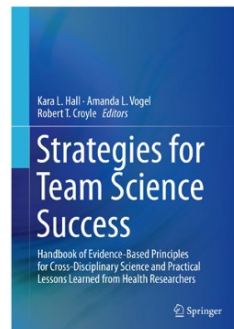
Hall, K.L., 2018 *Strategies for team science success: Handbook of evidence-based principles for cross-disciplinary science and practical lessons learned from health researchers*. Springer Nature.

Research Collaboration Best Practice #2

Communicate clearly to save time, build trust, avoid pitfalls

Pragmatic Tools: Research collaboration "pre-nuptials"

- What are the research goals and expected outcomes of the project?

- When will the project be over?

- How will you establish a shared language across the project

- Who will write the reports?

- How will you decide what to do if discoveries made during the project change the direction of your research?

- Who will do the hiring, firing and supervising?

- How will credit and authorship be assigned?

- How will you make decisions about new collaborations or spin-off projects?

- What will you do about patents and intellectual property?

- Who will manage the data?

- What will happen if a collaborator changes job during the project?

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Formalized Collaboration Planning

A collaboration plan can be developed at:
- any point in the research life-cycle
- any level of detail that best serves the team

1. Rationale for Team Approach and Configuration
2. Collaboration Readiness
3. Technological Readiness
4. Team Functioning
5. Communication and Coordination
6. Leadership, Management and Administration
7. Conflict Prevention and Management
8. Training
9. Quality Improvement Activities
10. Budget and Resource Allocation

"Comprehensive Collaboration Plans: Practical Considerations Spanning Across Individual Collaborators to Institutional Supports", by Kara Hall, Amanda Vogel and Kevin Crowstin, Chapter 45 of Strategies for Team Science Success

https://link.springer.com/chapter/10.1007/978-3-030-20992-6_45

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Up-front author agreements

To center the research integrity while managing relationship and modeling transparency, co-develop and agree on authorship criteria at the outset of collaborating, and about the process of communicating and decision-making, but make final authorship decisions after data are taken and before writing the product,.

CRediT (Contributor Roles Taxonomy) offers authors the opportunity to share an accurate and detailed description of their diverse contributions to the published work.

Allen, L., O'Connell, A. and Kiermer, V., 2019. How can we ensure visibility and diversity in research contributions? How the Contributor Role Taxonomy (CRediT) is helping the shift from authorship to contributorship. *Learned Publishing*, *32*(1), pp.71-74.

https://www.elsevier.com/authors/policies-and-guidelines/credit-author-statement

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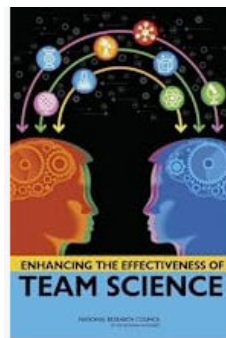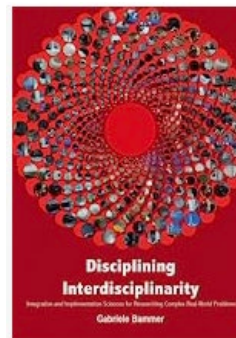
Research Collaboration Best Practice #3

For a large complex team, invest in integrative experts

Organizations and Resources for Integration Professionals

INSciTS Building the knowledge base for effective team science
International Network for the Science of Team Science

INTEGRATION AND IMPLEMENTATION SCIENCE
Research resources for understanding and acting on complex real-world problems
Dr. Gabriele Bammer

INTEREACH

Interdisciplinary Integration Research Careers Hub

A community of practice

Established 2016
www.intereach.org
Open community of practice, join us any time
(2nd and 4th Tuesdays of the month at 9am PT)

ENHANCING THE EFFECTIVENESS OF
TEAM SCIENCE

NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES

Disciplining Interdisciplinary
Integration and Implementation Sciences for Researching Complex Real-World Problems
Gabriele Bammer

TSAL

UCI Team Scholarship Acceleration Lab
https://tsal.uci.edu

National Research Council, "Enhancing the effectiveness of team science," National Academies Press, (2015);
Bammer, "Disciplining interdisciplinary: Integration and implementation sciences for researching complex real-world problems," ANU E Press, (2013)

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Tips for Funding

Funding Opportunities

- Increasing opportunities for cross-disciplinary collaboration
  - E.g., Social Science Research Council:
    - African Peacebuilding Network: Collaborative Working Group Research Fellowships
    - Transregional Collaborative Research Grants

- Federal agencies:
  - Multiple-investigator awards very common
  - Almost all of NSF's newest funding initiatives are cross-Directorate, cross-disciplinary – require collaboration, need social scientists

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Collaborations and NSF Funding Mechanisms

- Research Projects
  - Multi-Investigator/Multi-Institution Projects - disciplinary or cross-disciplinary
  - Cross-Directorate Interdisciplinary Initiatives
  - International Collaborations
- Planning Grants
- Research Community-Building Activities
  - Workshops/Conferences
  - Research Collaboration Networks (RCN)
  - Office of International Science and Engineering: AccelNet; IRES

Proposal Writing Strategies

- Build on team science and collaboration evidence base and resources – cite literature

- Explicitly name approaches, roles, activities, and investments in your proposal that are drawn from valuing collaboration evidence and tools

- Build culture of communication and team science awareness from leadership throughout team

- For complex endeavors, consider including a named integrative expert

- Link collaboration education into collaboration research as we train the next generation of transdisciplinary researchers

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Previous Webcasts

- Strategic Planning for Research Careers at HSIs
- Funding Strategies for Social Scientists at HSIs
- Anatomy of a Winning Proposal
- Developing Grant Budgets & Data Management Plans
- Describing Social Science Methods in Proposals

- Recordings, slide decks and other resources available here: https://cahssa.ucsb.edu/programs/

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Questions & Post-Webinar Evaluation

Survey link:
https://docs.google.com/forms/d/e/1FAIpQLSd0D NDPCR6j3Qkt0ai5_zcNct24yc2SMsyzEHiPwpVGS1lE ow/viewform?usp=sf_link

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THANK YOU!

- Recording, slide deck and other resources presented today will be available here: https://cahssa.ucsb.edu/programs/